

SKYWAYS

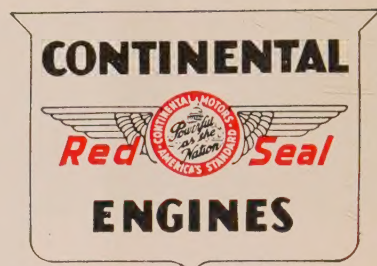
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AVIATION FORECAST
for 1948



FEBRUARY 1948 25¢



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Today who are Developing
the Airplanes of Tomorrow"***

In the 20 years since it pioneered engines of horizontally-opposed design — the type which made possible the development of today's personal aircraft — Continental Motors has sponsored many programs for the advancement of flying. Latest in a series of such moves for the industry's long-range good is the company's establishment of a sterling trophy and a \$10,000 purse in connection with the All-American Air Maneuvers at Miami. Continental Motors hopes, by this means, to foster the initiative so vital to technical progress, to the end that the planes of tomorrow may embody speed, safety, dependability — a degree of all-round usefulness surpassing that of even the finest planes of today.

Continental Motors Corporation
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How to choose the RIGHT Plane

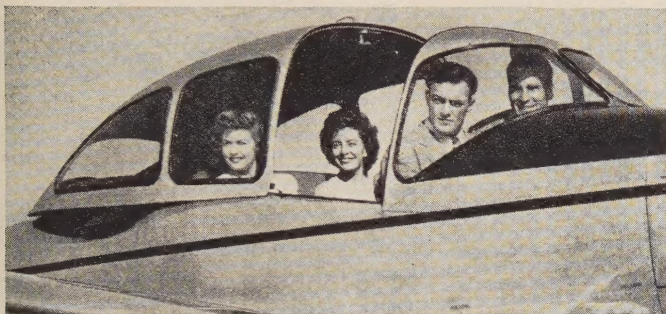
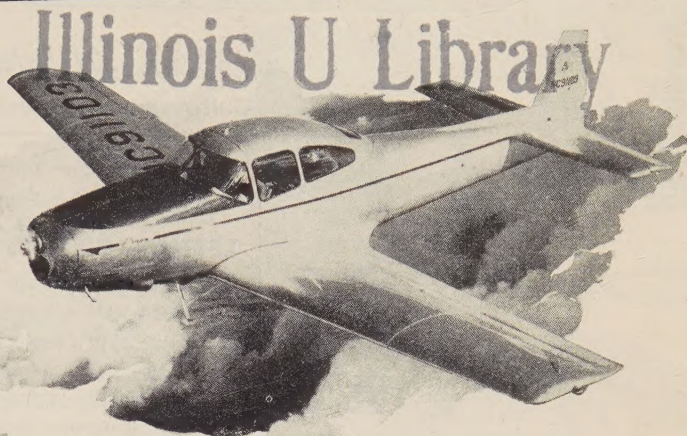
Here's a quiz to test your ability to find the plane that gives you the *finest balance* of all the qualities you want. It will help you find out what to look for and where to find it.

1 FINE CRUISING PERFORMANCE, without sacrificing other equally important qualities, is a must. Here are cruising speeds being obtained by owners of three different 4-place personal planes. Can you pick the *Navion's*?

- ☐ 120 mph ☐ 150 mph ☐ 162 mph

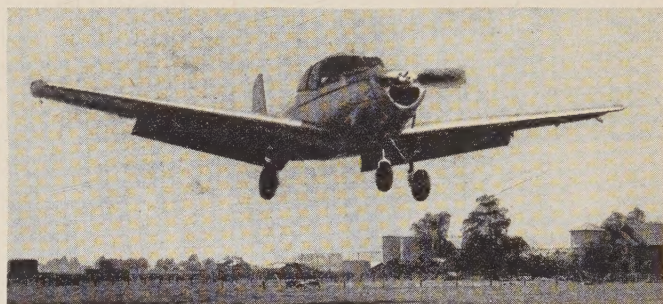
2 BOTH VETERAN AND NOVICE pilots say the 4-place *Navion* is **EASY-TO-FLY**. What do you think is the outstanding reason?

- ☐ Exceptional stability in rough as well as smooth air
☐ Ingenious stall-resistant wing design
☐ Interconnected rudder and ailerons



3 VERSATILE LOAD CAPACITY means greater utility. The exceptionally roomy and comfortable *Navion* can be quickly converted to fly bulky cargo. Check the net payload you think the *Navion* delivers.

- ☐ 455 lbs. cargo plus pilot and passenger
☐ 645 lbs. cargo plus pilot and fuel for 500 mile nonstop flights
☐ 55 cubic feet of bulk load



5 SHORT-FIELD PERFORMANCE is also an outstanding *Navion* quality. Here are the take-off and landing performances of three planes. Can you spot the *Navion's*?

- | | TAKE-OFF | LAND |
|-----------------------------|----------|---------|
| <input type="checkbox"/> 1. | 585 ft. | 490 ft. |
| <input type="checkbox"/> 2. | 765 ft. | 565 ft. |
| <input type="checkbox"/> 3. | 560 ft. | 335 ft. |

ANSWERS:

1. 150 mph. Designed by top North American engineers, the *Navion* could have been made faster or slower, but experience proves *Navion* design gives high performance while retaining ideal stall and landing characteristics, ruggedness and other "musts" for safety and satisfaction.

Canopy is temporarily removable for easy bulk loading.

2. If you picked one or all, you're right! All are *Navion* qualities that make both beginner and veteran pilots say: "Easiest, safest plane to fly!"

4. Again, if you picked one or all, you're right. The Ryan-refined *Navion* "forgives" every flying error short of deliberate foolhardiness.

3. All three are correct, because all three are variations of *Navion's* load capacity.

5. No. 3 is correct! *Navion's* 185 hp engine and variable-pitch propeller give short, easy take-offs with abundant reserve power. Hydraulic flaps, shock absorbers, and tricycle gear with steerable nosewheel give smooth, safe landings even in cross winds and on rough fields.

4 SAFETY is an outstanding *Navion* characteristic...unequalled by any plane in its class. Can you pick the reason why?

- ☐ 360° cabin visibility
☐ Aileron control even below stalling speed
☐ Extremely rugged, all-metal, thick-skinned construction throughout

Give yourself 20 points for each correct answer. If you scored 100 you're a man who knows airplanes...and the 1948 *Navion* is your best bet. A score of 80 or 60 means you're well on your way to getting the most for your money. If you got 40 or less, you'd better write today on your letterhead for our fully illustrated brochure and a demonstration by your nearest dealer.

Rely on Ryan

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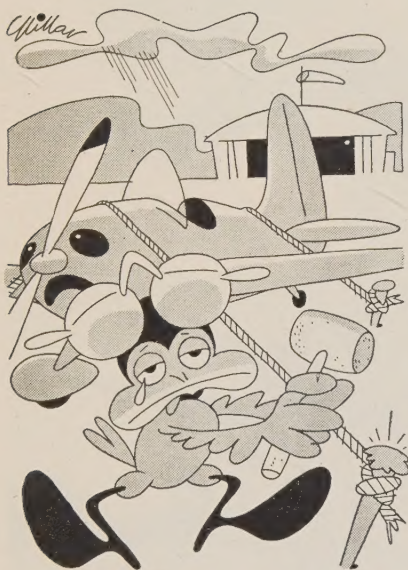
NEW
Navion
 By RYAN

Vol. 7, No. 2, February, 1948. SKYWAYS including THE FLYING SPORTSMAN is published monthly by Henry Publishing Company, 444 Madison Ave., New York 22, N. Y. Printed in U.S.A. Single copy, 25 cents. Subscription Prices: U.S., possessions, Canada and Pan-Am. Union, \$7.00 for three years, \$5.00 for two years, \$3.00 for one year; all other countries, add \$1.50 per year for postage. Six weeks required for address changes (give both old and new address). Manuscripts, drawings, other material must be accompanied by stamped, self-addressed envelope. SKYWAYS including THE FLYING SPORTSMAN is not responsible for unsolicited material. Reentered as second-class matter Oct. 30, 1947, at the post office at New York, N. Y., under the Act of March 3, 1879. Copyright 1948 by Henry Publishing Company.



The Birdmen's Perch

By *Major Al Williams, ALIAS, "TATTERED WING TIPS,"*
Gulf Aviation Products Manager, Gulf Bldg., Pittsburgh 30, Pa.



You may have missed the news.

And we wish we didn't have to break it to you. But there'll be no Gulf Air Tour this year.

These Tours were inaugurated in 1937, you know. And we held them every year until the war provided obvious reasons for interrupting them. Last year's get-together was the Sixth, and was certainly the most successful one we've ever had.

But petroleum products are pretty tight this season. The demand for them is so great that, even though the whole petroleum industry is working at top speed, they're still in short supply.

And the Gulf Air Tours eat up a heap of oil and gas (over 3,000 planes, last year)!

Well, this year, we think it's in the public's interest to have that oil and gas

available for other, more important uses. So, no Gulf Air Tour.

LETTUCE DISCUSS OIL

We were sitting around with a paper one day when we came across this item:

All but 5% of a lettuce leaf is water.

That reminded us of crude oil and the small percentage of it which is suitable for lubricating purposes. Out of a gallon of crude, only about a pint and a quarter remains for lubrication after refining!

In regular lubricating oils, that is.

But to make Gulfpride Oil, we add still another refining step, the Alchlor Process. And this *extra* step throws out



an additional 15% of the already refined oil . . . hydrocarbons which we consider unsuitable for really critical lubrication!

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HEY, EVERYBODY!

Where are the letters? The post cards? The wires and cables?

We asked you last month if you wanted

to continue the Little Known Facts About Well Known Planes Dept.



Or if you had any better ideas, such as running a "Favorite Flying Gripes" section, or "Pet Pilot Peeves" . . . or you name it!

(We figure this is *your* page and *you* should be the Committee on Policy Matters.)

Well, we haven't gotten enough letters to cover our blotter. A few Perch Pilots want to continue the Little Known Facts until we get a Command Perch Pilot—a fella who's had 20 L.K.F.'s published.

Another chap wanted us to use the space to find his missing girl friend.

We don't really care what it turns out to be, if most of you are in favor of it.

But how can we tell what most of you think without letters from most of you?

So tell us what you want.

Address above.

Gulf Oil Corporation and Gulf Refining Company...makers of

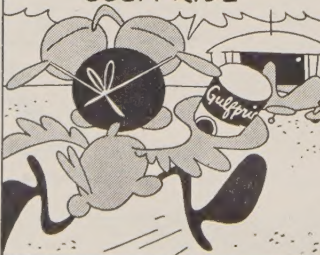


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SKYWAYS

Incorporating Air News

Cover: Kodachrome—Aero-Flight Streak

Aviation Forecast for 1948	D. N. Ahnstrom	18
<i>Results of SKYWAYS' survey indicate industry trend is up</i>		
Faster than Sound.		21
<i>Speed runs by XS-1 will eventually test theories of supersonic</i>		
Water Bombers.	Tamara Andreeva	22
<i>Forest Service and Air Force combine to fight timber blazes</i>		
Easy Does It . . . by Plane	Bob Arentz	24
<i>Three couples enjoy 360-mile trip to Yellowstone by plane</i>		
Tricycle Cub	Gene Landman	27
<i>Instructors' delight is this tricycle-gear'd Piper Cub trainer</i>		
More Miles per Gallon	E. R. Carney	28
<i>Knowing your ship can stretch plane's range, the pilot's \$'s</i>		
Arkansas Travelers—by Air		30
<i>Flying anglers use a Super Cruiser to get where they're goin' to fish</i>		
Ditch the Din	H. E. Brennert	33
<i>Diehl muffler provides one answer to problem of plane noise</i>		
Rancher—Flyer		34
<i>Bad weather "persuaded" this rancher to invest in an airplane</i>		
Jet Wing	Don Andrews	36
<i>Jet Flying Wing called design "most likely to succeed"</i>		
Skyway to God's Lake	Jack Connor	38
<i>Plane provides main transportation into Canada's interior</i>		
Dilbert	Robt. Osborn & Seth Warner	40
<i>If you use your head just to hold up a hat, you're a Dilbert</i>		
New on the Wing		43
<i>New aircraft of interest to pilots the world over</i>		
Cross-Country		53
<i>Here and there with airmen and the planes that make news</i>		
Air Your Views	6	Where-to-Fly 14
Prop Wash	10	Hangar Flying 16
Editorial	12	Plane Service 59

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There are two SKYWAYS: English and Spanish

FEBRUARY 1948

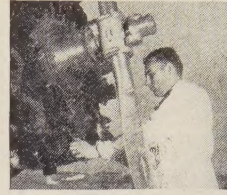
VOLUME 7, NUMBER 2

The Henry Publishing Company publishes SKYWAYS at 444 Madison Avenue, New York 22, New York. Advertising Offices: 444 Madison Avenue, New York 22, N. Y.; 6 N. Michigan Avenue, Chicago 2, Ill.; 816 W. 5th Street, Los Angeles 13, Calif. Gordon Simpson, West Coast Manager. James L. Cunningham, Chicago Manager.

Spanish Edition: Adolfo Guido Lavalle, Editor-Director, Suipacha 419, Buenos Aires, Argentina.

FEBRUARY 1948

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in the March Issue



AIR YOUR VIEWS

Matter of Lift

Gentlemen:

I have heard many conflicting stories about how the action of air against the wings enables a plane to fly. I'd appreciate your telling me exactly how the air flowing over a wing lifts a plane.

M. ANNENBERG

Brooklyn, N. Y.

We think one of the briefest and best explanations of heavier-than-air flight was offered by Wolfgang Langewiesche in his recent book, "Stick and Rudder." Mr. Langewiesche says, "The main fact of all heavier-than-air flight is this—the wing keeps the plane up by pushing the air down." Might we suggest that for one of the most understandable explanations of the theory of flight you read Mr. Langewiesche's book.—Ed.

I am interested in flight programs sponsored by such schools, as well as extra-curricular clubs operated solely by students. Perhaps, too, you could give me some info about schools that have a close tie-in between aeronautical work leading to a degree and an active flight program.

F. E. RINGER

Lancaster, Pennsylvania

I believe you'll find that today most colleges and universities have flying clubs. A few of the leading universities that offer aeronautical degrees and active flight programs are Michigan, Illinois, Purdue (in Indiana), Leland Stanford (California), U. of California, and Princeton (N. J.). There are undoubtedly many others. Perhaps a letter to the information Section of the CAA, Washington, D. C., would bring you additional information.—Ed.

BT Battle

Gentlemen:

After reading your recent article on Dr. Kerr soloing a BT-13 in 49 hours and 50 minutes flying time, I passed it off as nothing so unusual. However upon glancing through your November edition, I see where a couple of boys bettered his time considerably. Reaction: still nothing so unusual!

Without any previous experience in any type of aircraft, two boys here at Wolfe Airpark took their entire training in BT's and soloed in 8 hours, 30 minutes and 8 hours, 40 minutes respectively. Even with this they are still being razed about dragging their feet.

CHARLES F. WOLFE

Otay, California

Makeshift Repairs?

Gentlemen:

In regard to the picture at the top of page 19 of your October issue, I would like to know what kind of makeshift repairs the owner made before he flew his seaplane home?

D. E. GROUT

Lincoln, Neb.

A good question! Matter of fact we asked the photographer the same thing and his reply was, "Pilots in Alaska accomplish amazing things . . . and this fellow did fly his ship home." We share our photog's enthusiasm for Alaska's airmen . . . and are inclined to give those "makeshift repairs" benefit of the doubt.—Ed.

Plane Facts

Gentlemen:

Can you give me performance data on the Volmer VJ-21 which you pictured in October?

LEWIS GANSON

Hayward, Calif.

The VJ-21, designed by Volmer Jensen, is a three-place coupe powered by 75-hp Continental engine. It has cruising speed of 110 mph, range of 500 miles and average gas consumption of 25 miles to the gallon. Fully equipped, the plane weighs 850 pounds. For further information, write Volmer Aircraft Company, 1515 Ard Evin Avenue, Glendale, Calif.—Ed.

Gentlemen:

Can you tell me something about an Arrow Sport? Can it be licensed and how much would a recovery job cost?

A. K. HOOPER

Helena, Montana

The Arrow Sport was built in 1930 and '31. It originally was powered by a 60 or 65-hp LeBlond engine. Accurate info on licensing and recovery should be obtained from some reliable aircraft service operator in your vicinity.—Ed.

Gentlemen:

We ran across letters in your November issue from Mrs. John Echols and Marlow Webb on their BT experience. It seems that you are emphasizing quick check-outs in BT's. However, we feel that such a magazine as yours should not adhere to such a policy. We have seen too many accidents in BT's due to check-outs of less than 5 hours.

SHIELDS B. CRAFT
ORLYN L. JONES

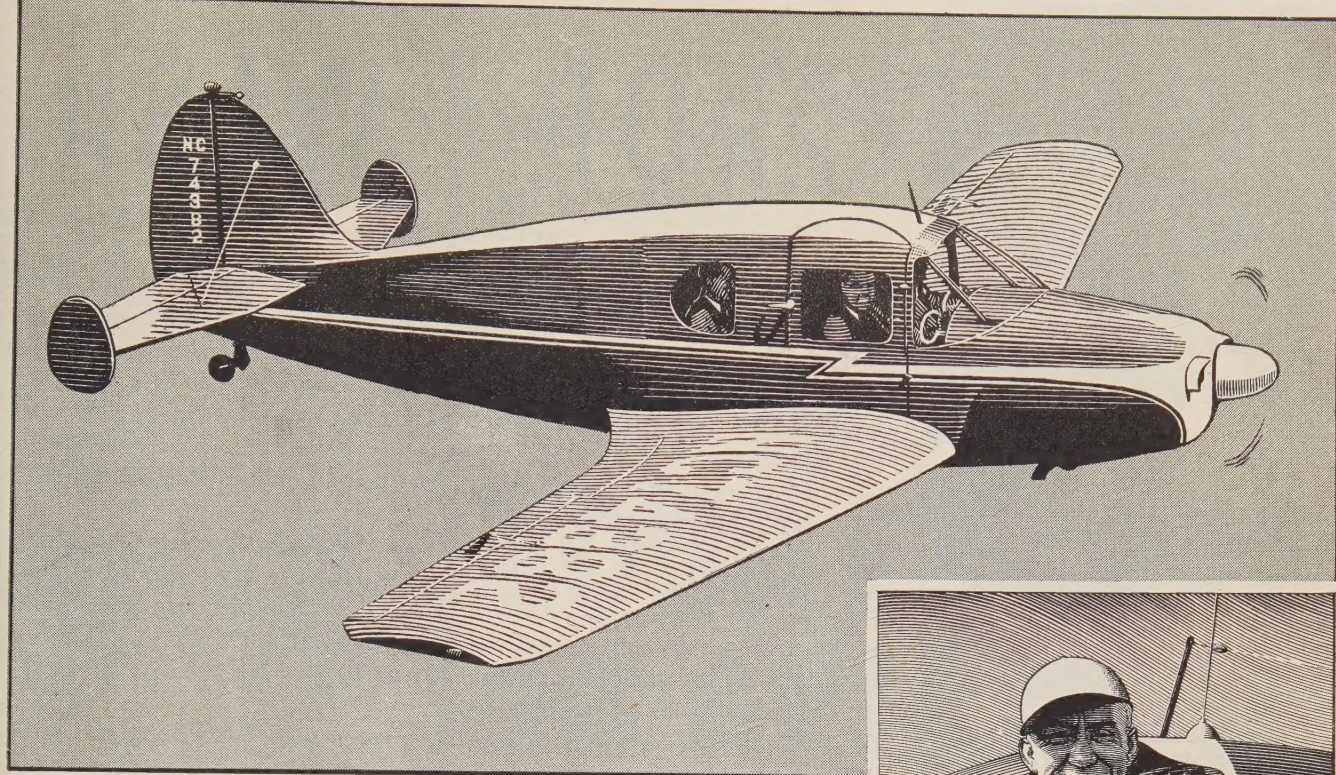
San Bernardino, Calif.

In publishing letters from BT students, SKYWAYS does not mean to infer that it either approves or disapproves the short- or long-period training of pilots. We are merely reporting what we consider to be interesting information from pilots for pilots. Judging from the number of letters we received from BT flyers, 5 hours of flight time is by no means unusual.—Ed.

College Flying

Gentlemen:

I am seeking information about flying activities in colleges and universities throughout the U. S.



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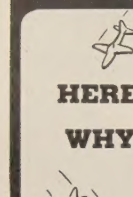
GETS THERE ON TIME . . . LANDS ON A DIME



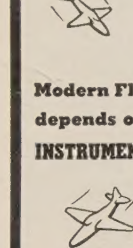
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PROP WASH

Aero Oddities

Belly Hop. Airport onlookers were surprised to see a pilot bring his new Culver into the field on its belly. When asked why he hadn't let down the ship's gear, pilot reported he'd been so intent upon making a good landing he'd forgotten all about dropping the wheels. (W. Schuettler, Norristown, Pa.)

Jump Take-off. When a pilot left his twin-engine ship at local airport overnight, field owner went out at dusk and tied ship down. Next morning when field owner was at another airport, he saw a twin-engine ship come in with something hanging from each wing. Investigation proved it to be ship he'd tied down at his field and which pilot had flown out that morning without untying. (D. Cole, Williamstown, Mass.)

Pilots, Beware. Six-year-old daughter of B. F. Maness, manager of Kermit Airport, saw a PT-19 with painted shark's teeth on the nose, land at her father's field. Rushing to her parent, child exclaimed, "Come quick, Daddy, Dilbert has just landed!" (B. Maness, Kermit, Tex.)

Guess Where. A student on his first X-C got hopelessly lost and so landed in an open field. When he neared farmhouse to inquire as to where he was, student pilot discovered he'd landed on farm next to his own. (T. Macalis, Maple Shade, N. J.)

Route 1. While ferrying a T-craft for new owner, pilot was forced down by bad weather. Owner-passenger continued trip home by bus while pilot sat out weather. Day later, after taking off on last leg home, pilot discovered owner had taken Sec chart with him. Pilot landed near highway, stopped first car, borrowed highway map, then took off again and used it to complete X-C. (J. Ayer, Tulsa, Oklahoma.)

Dead Heat. Two pilots took off from field at Lock Haven, Pennsylvania, in

new *Super Cruisers*. Their take-offs were five minutes apart. Each flew his own route, both were delayed by bad weather, and they didn't see each other again until they landed at their destination, Franklin, Indiana, five minutes apart. (Fl C. Myers, Martinsville, Ind.)

Time Out. Recently grid game at Craigmont, Idaho, was interrupted to allow a plane to land, pick up party of hunters, and take off again. (H. Clifford, Tacoma, Wash.)

Absentminded. Pilot Lane had spent all morning giving flight instruction. At noon he got into new car, started home down narrow highway. Seeing another car approaching from opposite direction, Pilot Lane pulled off into the ditch to "avoid locking wings!" (Mrs. H. L. Faulkner, Gainesville, Fla.)

Lost 'n' Found. Former pilot and now Link vice-prexy Emerson was flying an aerial photographer over Mohawk Valley one day. Photog let an expensive lens slip off camera and fall to earth. Pilot Emerson told photographer not to worry, returned to field, borrowed friend's car, drove 12 miles out into the country, crossed farmer's field and picked up lens! (D. Featherstonhaugh, Duaneburg, N. Y.)

Fishermen's Net. When a lightplane landed in Puget Sound near group of salmon fishermen, fishermen rowed over to disabled plane to offer help. Instead, the fishermen were arrested by Inspector-pilot for illegal fishing. (E. Price, Wash.)

Att'n Readers:

If you have any news-note oddities pertaining to aviation, send them to SKYWAYS, Box 17, 444 Madison Avenue, New York 22, N. Y. Five dollars will be paid the sender of each "oddy" printed. Contributions cannot be returned unless accompanied by stamped addressed envelope. The decision of the editors is final.

Here's News!

**THE AIR AGE
OF TOMORROW
IS HERE . . . TODAY . . . NOW!**

Where do you fit in?

YOUR FUTURE IN AVIATION

Edited by

J. FRED HENRY

Editor of SKYWAYS



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To answer these questions the smart way, it's facts, not romance that you need.

YOUR FUTURE IN AVIATION gives you these facts. Here is the road map to your future, charted by experts who know the score. Lawrence Bell, President of Bell Aircraft; A. E. Raymond, Vice-President in Charge of Engineering at Douglas; Ernest Breech, President of Bendix; C. I. Egtvedt, President of Boeing; 300 top-flight leaders in the aviation industry have cooperated with J. Fred Henry, Editor of Skyways, in compiling this book . . . FOR YOU.

These men blueprint **YOUR PROSPECTS** in the expanding fields of mili-

tary aviation, commercial transport, and private flying. They show you **WHERE THE OPPORTUNITIES ARE**, in an industry many times larger than the automobile industry, and tell you how you can measure your talents for them.

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Time Is Crucial

AN EDITORIAL

I CANNOT emphasize too strongly the element of time. In research, in development, in tooling, in material supply and in final production, time is crucial."

This is the warning given the President's Air Policy Commission by Maj. Gen. Oliver P. Echols, Assistant Chief of Air Staff, Materiel, during the last two years of the Second World War and now President of the Aircraft Industries Association. The General continued: "We must realize and must bring the American people to the realization that when attack comes (and no intelligent enemy would repeat the single-raid mistake of Pearl Harbor), our defeat is inevitable if our immediate ability to produce is not equal to our minimum requirements for successful defense. The sole factor of an air force-in-being equipped with large numbers of operating planes, could be our Maginot Line, lulling our people into a false sense of security and condemning us to defeat by our own complacency. Normal rates of attrition, including obsolescence are approximately 25 per cent a month."

This testimony gains added strength when we consider that we do not now have even the "Air Force-in-being" and that we are dragging our obsolete B-29's out of the pickle barrel in order to equip what we plan as our ultimate 70 Group Air Force (of which 55 Groups were supposed to have been ready by January 1).

The B-29 is a good airplane and it still has a lot of usefulness in it. The very fact, however, that it has been relegated to the Heavy Bombardment classification, demoted from Very Heavy, is a sufficiently significant fact to give the reader pause. The old axiom that a plane is obsolete before it leaves the

drawing board was never truer than today.

Our 70 Group Force, as planned, calls for delivery of 9,000 planes a year, with an average replacement every four and a half years per plane. (This average, of course, covers all types; there is fairly wide variation between types as to their useful life span.)

The layman will ask: "Okay, then, why don't we just get busy and build those 9,000 a year and stop worrying?" The answers are many and complicated—it is something like the House that Jack Built. There are all sorts of people who must live in that house. To use an extreme example, you wouldn't consider that you had an Air Force if you build 9,000 War I Jennies.

To quote General Echols again: "We are only on the threshold of a revolution in almost all phases of aeronautical science. It is the responsibility of the peacetime aircraft industry to apply the results of research, and to generate progressive development of aircraft that can meet military needs, and be produced in combat quantities."

If Congress adopts a National Air Policy as the result of the work of the admirable President's Commission and its own Joint Air Policy Committee, we will have taken the first long step forward. That policy will then have to be implemented by appropriations—and it is fervently hoped that those appropriations will be based on the same long-range pattern on which the Navy is able to build battleships. We will save not only "our lives, our freedom and our sacred honor" by such long-range pre-planning, but we will save our dollars as well through elimination of inefficiency due to the inability to look beyond the immediate day in an industry where we can, at best, make haste

slowly, through trial and error.

Although the public has been dangerously over-sold on the subject of Guided Missiles, it is one which cannot be scamped and for which we must labor constantly, at whatever cost, because we cannot fall behind in the race. Here is the best expert testimony (well hedged with *if's*) on the length and cost of such a program (See chart).

In the face of such staggering amounts of money, not to mention the Devil's Stockpile of Destruction we will be creating, it would seem that somehow Man would come to his senses and stop making war. But until he does, we must face the risks of annihilation or persist in our own efforts at preparedness. Obviously, no private industry is financially able to carry the load. Especially an industry where the 1945 operating income of \$325 million for 15 companies for 1945 was replaced by an \$82 million operating deficit in 1946, with further losses in 1947. Public confidence in their financial soundness has diminished to the point where long-term financing seems impossible.

Think of those desired 9,000 planes a year and then look at the current picture: from January 1st, 1947, through August 31st, the total number of planes delivered to the AF was 304, of which 199 were jets. On the basis of the 1947-'48 AF appropriations, funds allowed for procurement of new aircraft, to be delivered during 1949 and 1950 and which would be used to equip organizations now equipped with World War I aircraft, would modernize approximately one sixth of the total Air Force. (This includes the necessary jet equipment for that percentage of the 70 Groups.) Is any further comment necessary? J. FRED HENRY

Phases and Costs in Development of Guided Missiles

Item	Subsonic (600 mph) Pilotless Aircraft		Supersonic (1,400 mph) Pilotless Aircraft		Supersonic (3,500 mph) Rocket	
	Time	Cost	Time	Cost	Time	Cost
Research, Development, Experimental Engineering and 5 Experimental Missiles	3 Years	\$6,000,000	6 Years	\$30,000,000	10 Years	\$150,000,000 to \$250,000,000
Research, Development, Production Engineering and 200 Service Test and Training Missiles	4½ Years	\$25,000,000	10 Years	\$100,000,000	15 Years	\$250,000,000 to \$375,000,000
Production Quantity of 5,000 Missiles		\$375,000,000		\$1,500,000,000		\$2,500,000,000 to \$3,500,000,000

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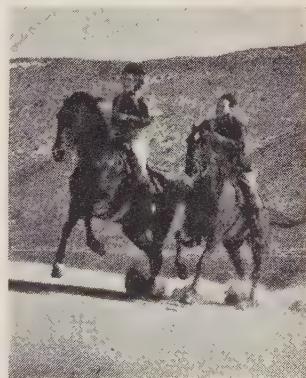
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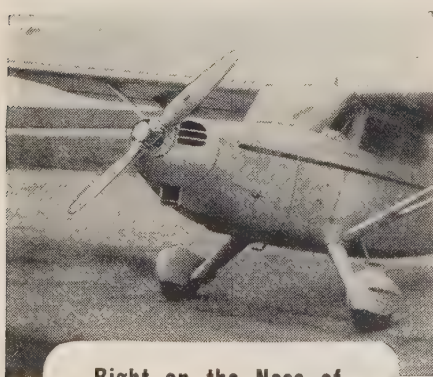
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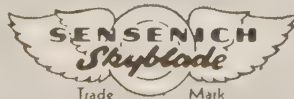


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Where to Fly

TEXAS

Texas is the largest state in the Union
and, according to Texans (as would be ex-
pected), it is not one of the best but is the
best state in the United States. We won't
deny or affirm that at this time, but we will
say that from a flying point of view, Texas
does rank as one of the very best. Its climate
is conducive to flying, its terrain is an ad-
vantage for the flyer, and the general avia-
tion interest of the Lone Star-ites makes
every pilot feel his is an extra special wel-
come when he flies in to visit the great state
of Texas.

Facilities for the personal pilot are many
—Texas abounds with airports, many offer-
ing all facilities for pilots as well as planes.
The following fields listed are merely a few
suggestions for RON's. There are countless
others, most of which are excellent.

AIRPORTS

Amarillo Municipal Airport—Amarillo.
(Cl. 4) El. 3,667 feet. Allway sod area, 3
strips, NE/SW, NNW/SSE, E/W. Circle
and name on hanger, wind sleeve. Hangars,
80 and 91 Octane fuel, major repairs. Snack
bar at field. Overnight facilities in Amarillo,
6 miles ENE. (Oklahoma City Chart)

Mineral Wells Municipal Airport (New)
—Mineral Wells. (Cl. 3) El. 938 feet. As-
phalt runways, N/S, NW/SE, NE/SW. Sod
strip, W/W. Wind sleeve. Rotating beacon,
range, contact, obstruction lights. Circle field
to signal for runway lights. No tie-down or
light fees. Major repair, 80 and 91 Octane
fuel. Food and lodging facilities in town 3.2
miles SE. This field is in excellent fishing,
hunting, ranch area. (Dallas Chart)

Midland Commercial Airport—Midland.
(Cl. 1) El. 2,800 feet. Sod runways, N/S,
NE/SW, E/W. Wind sleeve. No tie-down
fee, 80 and 91 Octane fuel, major repairs.
Meals and facilities in town 1 mile SE.
Courtesy car available at field, or transporta-
tion via taxi. (El Paso Chart)

Elder Field—Kilgore. (Cl. 2) El. 352 feet.
Sod and dirt strips, NE/SW, NW/SE, N/S.
Name on hangar, wind cone. L-shaped field.
Hangars, major repair, 73, 80 and 87 Octane
fuel. Meals at field. Other facilities in Kil-
gore, 2½ miles NE. Taxi and bus service.
(Shreveport Chart)

Bandera Airport—Bandera. (Cl. 2) El.
1,125 feet. Two strips, ENE/WSW, NNW/-
SSE. Wind cone, Hangar, major repair, 80
Octane fuel. This field is operated by Flying
L Ranch, and facilities are available for
meals and overnight stays. Many pilots fly
to Flying L for vacations, taking advantage
of sports activities and ranch facilities that
are available at field. (San Antonio Chart)

Faurie Field—Gonzales. (Cl. 1) El. 340
feet. Turf runways, NE/SW, N/S. Wind
cone. Night flares for landing by arrange-
ment. Hangar, major repairs, 80 Octane
fuel. Tie-down charge, 50¢ up. Snack bar
at field, hotel reservations made from field.
Pilots club on field. (San Antonio Chart)

Mueller Field—Austin. (Cl. 4) El. 620
feet. Asphalt runways, NNW/SSE, ESE/-
WNW, NE/SW. Tetrahedron in center of
field. Runway, approach, boundary and ob-
struction lights. Hangars, repairs, 80 and 91
Octane fuel. Tie-down charge, but no land-
ing fee. Food available on field. Other facili-
ties in town 3 miles NE. (Austin Chart)

**Brownsville Rio Grande Valley Int'l—
Brownsville.** (Cl. 5) El. 22 feet. Asphalt
runways, NW/SE, NE/SW, N/S. Lighted
wind sleeve on hangar. Rotating beacon,
range, contact, runway and obstruction
lights. Tee and tetrahedron. Landing lights
on request by circling field. Tower-directed
traffic. Overnight tie-down charge, 50¢ and
up, depending upon size of aircraft. Major
repairs, hangars, 80, 91 and 100 Octane fuel.
Food at airport, other accommodations in
Brownsville, 4 miles E. This field is an
established Port of Entry into Mexico, and
all documents necessary for entry into Mexico

Mexico flight permits are available
e. (Corpus Christi Chart)

Lufkin Field—Lufkin. (Cl. 2) El. 315 ft.
way sod field. Rotating beacon, wind
k. Major repairs, 80, 91 Octane fuel.
d and lodging available near field. More
complete facilities in Lufkin, 2 miles. E.
aumont Chart)

Conroe Airport—Conroe. (Cl. 4) El. 245
Runways, NW/SE, N/S, E/W. Tetrahe-
n. Field lights available by pre-arrange-
ment or buzzing field. Major repairs, 80, 91
ane fuel, no tie-down or light charge.
rnight facilities are available at airport.
er facilities in town 3 miles SW. (Beau-
mont Chart)

Harlingen Airport—Harlingen. (Cl. 5)
35 feet. Concrete runways, E/W, N/S,
/SE, NE/SW. Wind sleeve, traffic T.
ding lights on request. Major repairs,
91 Octane fuel. No tie-down charge.
i's dormitory on field. Meals available.
er accommodations in town 2 miles SW.
rpus Christie Chart)

Laredo Municipal Airport—Laredo. (Cl.
El. 511 feet. Pavel runways, N/S, E/W,
/SE, SW/NE. Wind sleeve and traffic T.
ding lights on request via radio. Maj-
repairs, 80, 91 Octane fuel. Meals at
l. Other accommodations in town 3 miles
l. This field is closest to Nueva Laredo,
ico. (Corpus Christie Chart)

Abilene Airport—Abilene. (Cl. 2) El.
3 feet. Hard runways, N/S, NE/SW,
7, NW/SE. Traffic T. Landing lights
control tower. Name on hangar. Major
airs, 80, 91, 100 Octane fuel. Meals at
l, other accommodations in town 2 miles
(Dallas Chart)

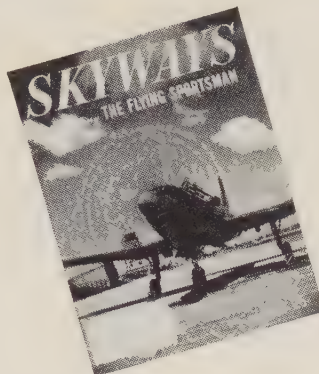
Sweetwater Field—Sweetwater. (Cl. 5) El.
0 feet. Runways, N/S, NE/SW, NW/SE.
d sleeve and traffic T. Landing lights
request or by circling field. Major repairs,
91 Octane fuel, no tie-down charge.
ls available on field, hotel reservations
e. Complete facilities in town 3 miles E.
las Chart)

Denton Field—Denton. (Cl. 2) El. 600
All-way sod field, runways, N/S,
/SE. Wind sleeve and T. Repairs, 80,
Octane fuel, no tie-down charge. Meals
lable at field. Other facilities in town
iles SW. (Dallas Chart)

San Angelo Airport—San Angelo. (Cl.
El. 1850 feet. Runways, N/S, E/W,
/SE, NE/SW. Right-handed traffic on
-off S, SE, W. Traffic T. Major repairs,
91 Octane fuel. No tie-down charge.
k bar on field. Airport courtesy car
lable, or bus town 1 mile E. (Austin
t)

Editor's Note:—Airport information sup-
d in the "Where to Fly" columns is to be
as supplementary material only. For de-
d information we suggest that you con-
CAA's Airman Guide. We invite your
cism and correction of any errors that
ut occur. Your help will help us to pro-
personal pilots with accurate and neces-
airport data.

How to keep up with the Air Parade



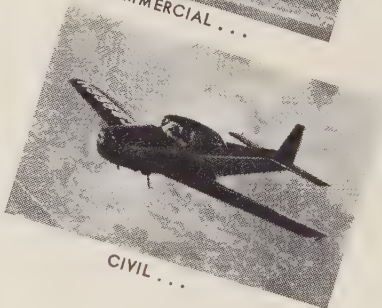
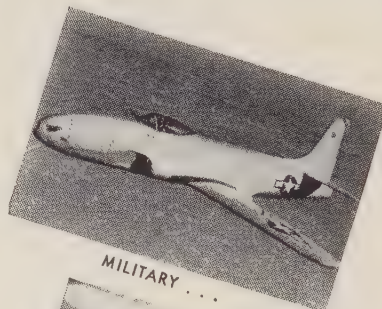
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SILVAIRE SEDAN, Luscombe's new all-metal four-placer, was quick to get flying farmers' nod of approval. Powered by 165-hp. engine, the ship cruises at 130 mph

HANGAR FLYING

Luscombe Price

NEW LUSCOMBE *Silvaire Sedan*, a four-place all-metal ship, is to be priced at \$6,995, flyaway factory, President Klotz recently announced. Already several orders have been placed for the ship and delivery is expected very shortly.

Designed for utility, the ship has a spacious cabin to accommodate either four passengers and baggage, or pilot and 600 pounds of cargo. One front seat and both rear seats are easily removed to make room for the 600-pounds of cargo. Powered by 165-hp engine, the *Sedan* is reported to have a cruising speed of 130 mph and a range of 500 miles. It has a service ceiling of 16,000 feet.

Skytours

IF YOU'RE A PLANE OWNER and pilot and don't know where to go in your puddle-jumper, maybe Skytours, Inc., is the outfit you ought to get in touch with. Located at Swarthmore, Pennsylvania, Skytours, Inc., for a nominal membership fee, will keep you informed regarding airfields and hotels of acceptable standards at reasonable rates; offers information on new places to go, sportsman's rendezvous; and supplies you with descriptive material of nation's scenic wonders, and reports on best ground transportation facilities at various airfields, etc. Skytours offers several other services, too, so . . . if you own a plane and want to use it for X-C pleasure travel, contact this outfit, get on their mailing list and . . . take a trip.

More Radio

FOLLOWING A REPORT some months ago about Radio Station WHO in Des Moines, Iowa, offering weather information to pilots, word has been received here that weather info service is not limited to the Midwest. Richard D. Stimson, of Washington, D. C., states the Silver Springs, Maryland, radio station WGAY gives pilots the necessary weather data four times a day, at 7:30 and 10 a.m. and at 12 noon and 4 p.m. He further

suggests that such weather info would be even more useful were it offered every hour on the hour. We agree with him . . . and so will all pilots.

Between Races

AN AIR RACE ENTHUSIAST recently asked what air racing pilots do between racing seasons. Clyde Garder of Cleveland, Ohio, came up with an answer . . . at least as far as Cook Cleland, winner of the '47 Thompson Race, is concerned. Mr. Cleland, we learned, has become one of Cleveland's busiest public speakers . . . and all for free. Since winning the big race on September 1, Cleland has averaged four appearances a week before various service, professional, business and boys' clubs in the Middle West. His transportation is, of course, by plane. A light-plane, however, and not the big *Corsair* he flew in the Thompson Race. According to Cleland, 90 per cent of the questions asked him at these speaking sessions have to do with jet.

Flight Home

FORMER RAF pilot Harry Newton worked in Belgium, but his home was in New Zealand. Wanting to get home, Pilot Newton decided to fly . . . but in his own *Ercoupe* and not an airliner. Newton took off from Belgium and flew a stage each day across Europe from one airport to another, through the Mediterranean and the Middle East to Indonesia and Australia. Thinking red tape and diplomatic difficulties might hinder his flight, Newton did not publicize his trip or even give a clue as to his destination. Actually his flight went unnoticed across the face of Europe because he obtained only short flight clearances from each airport.

The longest hop Newton made was from Australia across the Tasman Sea to New Zealand. When Australian officials refused him permission to make the 1,200-mile trip non-stop, Newton scheduled a stop-over at Norfolk Island, about half-way across the Tasman Sea. On this hop, however, Newton

hit some bad weather and so landed at Lord Howe Island, just 400 miles out. Officials at the tiny island's radio station reported Newton's *Ercoupe* was the first aircraft ever to land there. When Newton took off again, he decided to skip Norfolk and so flew directly to Auckland, a distance of 850 miles.

The entire trip took 22 days. To increase the range of his *Ercoupe*, Newton strapped two 44-gallon gasoline tanks into the cockpit alongside of him. Messers Newton, Evans and Truman ought to get together.

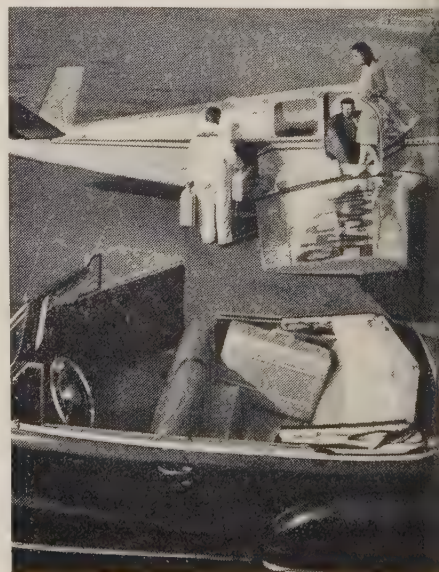
Reasonable Reply

AN ENGINEER with a well-known aviation company in Canada recently was commissioned to maintain a new *Seabee* for a large concern. One day when the engineer was checking the ship and making a few modifications an executive of the company owning the plane showed up. Knowing nothing at all about aircraft, he proceeded to ask a million questions while the engineer was trying to get his work completed. Such questions as "Do you have to do it that way?" and "Can't you do it this way?" brought reasonable answers from our engineer friend, but after 20 minutes of continuous chatter, nerves were strained. When the engineer crawled into the baggage compartment and was having to work in a very contorted position, the executive exclaimed "What are you doing now?" "I'm taking a bath!" was the engineer's terse reply . . . and that ended the interrogation.

For Private Plane Owners

OWNERS OF PERSONAL PLANES and executive transports won't want to miss a stop at Pacific Airmotive's set-up at Lockheed Air Terminal, Burbank, you-know-where. PAC recently opened service facilities expressly for the private plane owner and executive. Hangar storage is provided as is complete airplane service, telephone and stenographic service for the busy airman, and a comfortable pilot's lounge complete with showers and lockers. The businessman-pilot is at last being offered the facilities that encourage and foster greater use of private planes. Congrats to PAC.

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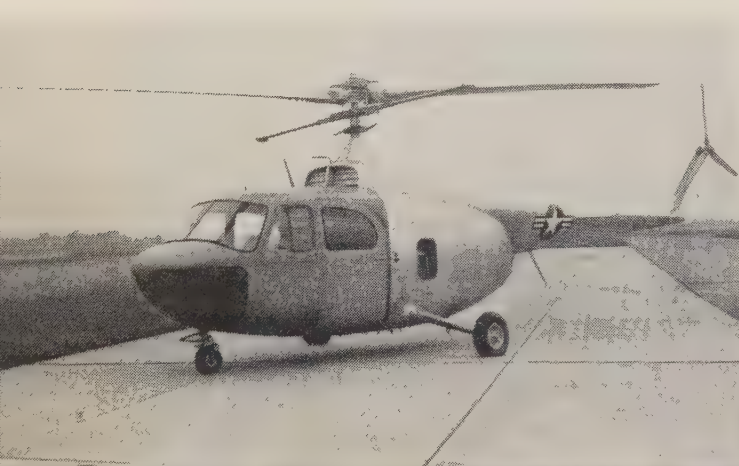
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Hawthorne, California



NORTH AMERICAN'S all-jet bomber (above), the B-45, will be in production for the Air Force this year. Bell's XR-12 (below) along with the YR-13 and the Model 47-D will come off the production lines at Bell's Buffalo plant



MCDONNELL completes production of *Phantom* this year, but will step right into production on *Banshee*



SIKORSKY was recently given a CAA license for the two-place S-52 (above), and this model will come off Sikorsky's production line this year. Glenn Martin Company has the P4M Mercator, Navy patrol plane (below)



AVIATION

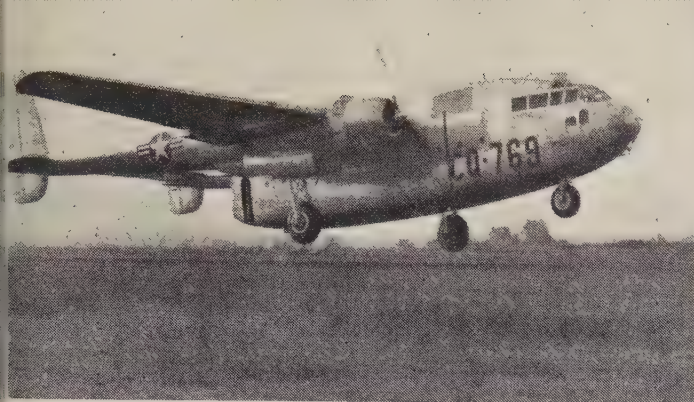
Industry survey indicates hopes are higher for production \$'s this year

By D. N. AHNSTROM

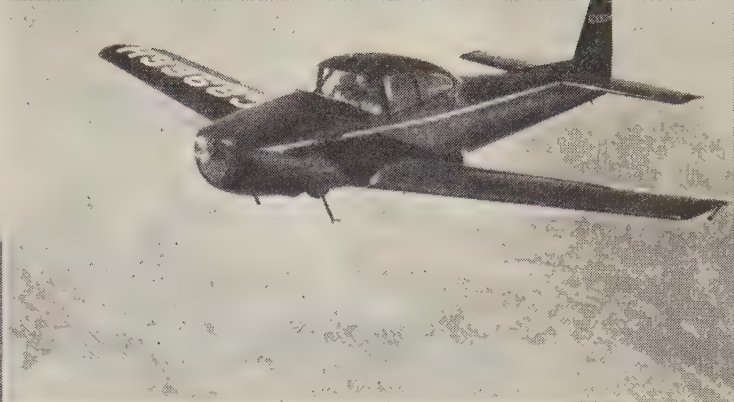
To the aircraft industry as a whole, the year 1947 was D year . . . a year beset by difficulties, deficits and few dividends. Contrary to expected trends, based more on hope than reasoning, the aircraft industry was not served up the deserts of peace that were supposed to find the United States an aviation-minded nation intent upon keeping itself first in the world of Air Power. Instead, the pendulum went the other way. Uncle Sam neglected his larder of military air might; there was little buying interest in personal aircraft; and commercial air traffic permitted only a scant absorption of the products off transport-plane production lines.

In the proverbial nutshell, the aircraft industry

CHANCEVOUGHT'S XF6U Pirate is undergoing final tests right now and will be in production early this year



FAIRCHILD will put the new and faster Flying Boxcar, C-119, on the production line for the AF sometime in July



RYAN'S production this year will be exclusively on the new model Navion. This feature refinements of '47 model

FORECAST FOR 1948

that had been a life-saving factor in the war years faced starvation in 1947 . . . and, for the most part, survived. A few, however, did not.

But the battle for survival is not yet over. The year 1948 may well be one of decision for those companies that remain. When 1948 is over, will we . . . or won't we . . . have a strong aircraft industry? Will the U. S. regain its position in the world of Air Power?

Based on the reasoning of SKYWAYS' own industry survey and the reliability of the President's Air Policy Commission and the Congressional Committee, SKYWAYS answers both questions in the affirmative. We *will* have a strong aviation industry. The U. S. *will* be first in air power. All in 1948.

The President's Air Policy Commission report, we believe, will be the needle to give the vital shot in the arm to research, development and production of military aircraft. Personal plane production and that of commercial aircraft will similarly benefit. The aircraft industry hit bottom in '47; the trend for '48 is up.

Taking the aircraft companies individually, the

following is their report, given to SKYWAYS within the past month, so that you may know the plans of the industry and their expectations for 1948.

Aeronca Aircraft Corp. **Middletown, Ohio**
Military: War Dept. contract for liaison plane was finished up the last of '47. Whether or not Aeronca will build under military contract in '48 is not known at this time.

Commercial: None reported.

Personal Plane: Aeronca will continue to build and market the *Champion* and the *Super Chief*, with minor refinements for '48 but no major design changes. An effort is being made to hold the present price lines (\$2,475 and \$2,755) on these two models. Two new airplanes are expected to go into production this year. The first one, due sometime within first four months of '48, will be a four-placer powered by 145-hp Continental engine. It is expected to sell for under \$5,000 . . . which makes it lowest priced four-placer on the market. This ship is said to be a complete departure for Aeronca, unlike anything the company has built thus far. Perhaps

LUSCOMBE plans to begin delivering its new four-place *Silvaires* the early part of this year. Price \$6995

TEXAS ENGINEERING is continuing production on the *GC-1B Swift*. Deluxe all-metal *Swift* sells for \$3750





CONSOLIDATED has plans for further testing of the long-awaited Flying Automobile, but no production plans

it will be all-metal. The second new ship to go into production this year will be a new 85-hp tandem trainer that will sell for \$2,600 and will have greater payload than the present *Champion*. There may be other new models in '48. As far as outlook for this year is concerned, Aeronca's picture looks much better for '48 than it was for '47. Everything points up, and Aeronca's entry into the four-place field should help the company to one of its best years in a long time.

Aero-Flight Aircraft Corp. Long Beach, Calif.

Military: None.

Commercial: None.

Personal Plane: In October, 1947, the Aero-Flight Aircraft Corporation announced its 125-hp *Streak*. This high-speed two-place personal plane is expected to sell for less than \$4,000 and to be in production in 1948. James K. Nagamatsu, President of the corporation, estimates the 1948 market for personal aircraft will number about 25,000 buyers. This is close to 10,000 fewer than the number of personal planes built in 1946, but is about the same number as were built in '47.

Beech Aircraft Corp. Wichita, Kansas

Military: None reported, except military versions of *Bonanza*, Model 18, etc.

Commercial: The 1948 production line at Beech

Aircraft will see the twin-engine, 20-passenger Model 34 Beechcraft and the smaller twin-engine Model 18. The 18 available on order for charter operators, Government or executive use. Present price (of the 18) dependent upon custom-equipment, is from \$63,000 to \$75,000. If there is any change, it will be upward due to increasing labor and material costs.

Personal Plane: The *Bonanza* will continue to be the popular four-place airplane for personal use. Except for minor refinements, the 1948 *Bonanza* will be the same as the '47 model. Present price of the *Bonanza* is \$8,945. As with the seven- to nine-place Model 18, any change in price will be upward in line with costs, although no increase is contemplated at this time.

The Beech Aircraft Corporation has a government backlog of about \$12,000,000 which will help stabilize Beech's volume of production. Beech's 1947 export market was excellent, (approximately \$4,250,000), and it is expected to equal that in '48.

Bell Aircraft Corp.

Buffalo, N. Y.

Military: Bell continues to be deep in military development. The XS-2 rocket ship, stainless steel swept-back wing version of the XS-1, is expected to be ready to undergo flight tests during 1948. In addition to the XS-series and helicopter developments for the military, Bell will continue its research and development on guided missiles. This work is under contract with both the Air Forces and the Navy.

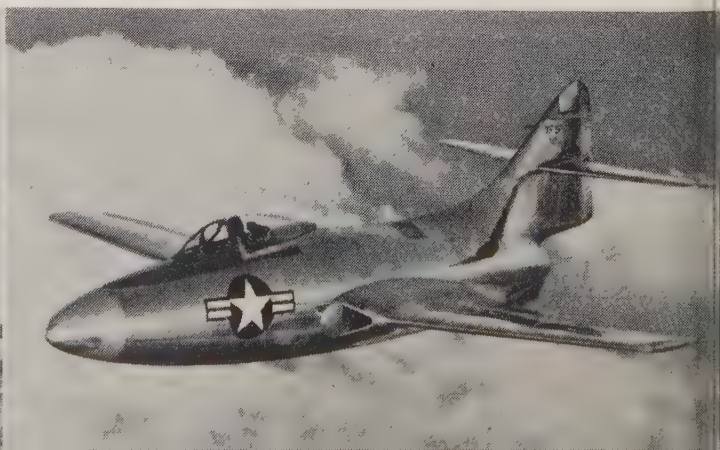
Commercial: In addition to the Model 47-D Utility helicopter (versions developed for agricultural crop dusting and crop spraying, for amphibious operations, and as transports and trainers), Bell will have the YR-13 'copter and the XR-12 (four-place sedan-type helicopter) in production.

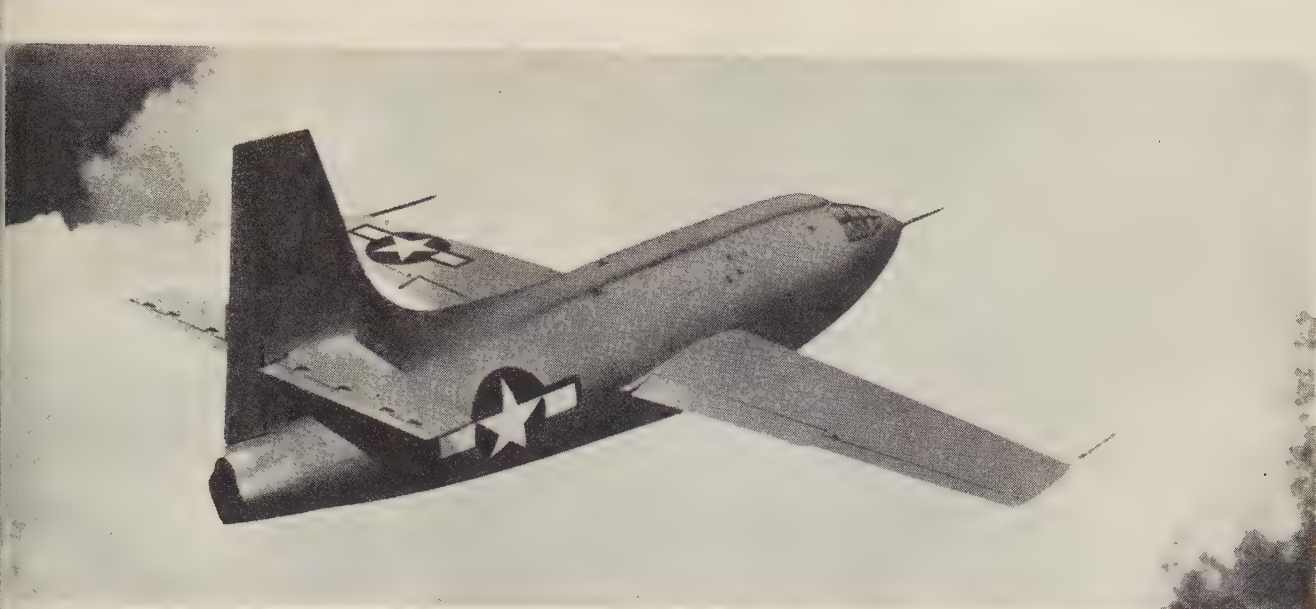
Personal Planes: None.

As with most companies engaged in Government work, the extent of improvement in military contracts depends upon the action taken as a result of the President's Air Policy Commission and the Congressional Committee. We (Continued on page 45)

NORTHROP'S Pioneer fills a need and, if all goes well, it should see production. No decision on it as yet though

GRUMMAN recently showed off its jet *Panther*, and production on it is scheduled to start within short time





RESEARCH PLANE for supersonic flight is the Bell XS-1. Reaction Motors rocket produces 12,000 hp at speed of sound

Faster than Sound

DURING the past few months the Navy has been carrying the ball in this matter of attempts by piloted research aircraft to capture the world's speed record, with a gradual working up to and through the speed of sound. August saw the Douglas *Skystreak* break the international speed records twice within a week, and November brought the announcement of its jet-and-rocket powered step-brother, the 558-2 *Skyrocket*.

Meanwhile the Air Force has been quietly at work on "Phase two" tests of its Bell XS-1 rocket-powered research plane, following tests last spring by Bell's Chalmers ("Slick") Goodlin. Already these scientifically planned trials at Muroc Flight Test Base, California, have brought the XS-1 up to Mach 0.90. The Air Force is confident that getting to Mach 1.00 (760 mph at sea level, 660 mph at 35,000 ft.) can be achieved, and that the XS-1 will, within the near future, break out into the supersonic speed bracket. When this is accomplished, aerodynamicists and engineers will for the first time have some solid facts to bolster, or shoot full of holes, many of their theories as to what actually will happen to man and plane when they are hurtled through the air beyond the speed of sound at some 15 miles above the surface of the earth.

Many have thought that the recently developed technique of telemetering could be used so that a test pilot

would not need to take the risks involved in pioneering in the realm of supersonic speeds. This would mean loading up the XS-1 with a batch of instruments to measure speeds, acceleration, pressures, stresses, etc., at the various altitudes, plus radar gear which would automatically transmit back to earth all the data required. As a matter of fact, this is being done—so much so that the XS-1 is more or less a flying laboratory. However, although the instruments tell their story accurately and in minute detail, it is but a part of the story. Only the well-trained modern test pilot can make the over-all evaluation of the plane's performance and the reactions on a human body at great heights and high speeds. For the present, since the death of Geoffrey de Havilland in the first DH-108 tailless jet research aircraft in September 1946, England has adopted the policy that tests in transonic and supersonic flight will be conducted with pilotless aircraft. For example they are now running tests on the Vickers transonic robot which is launched from a

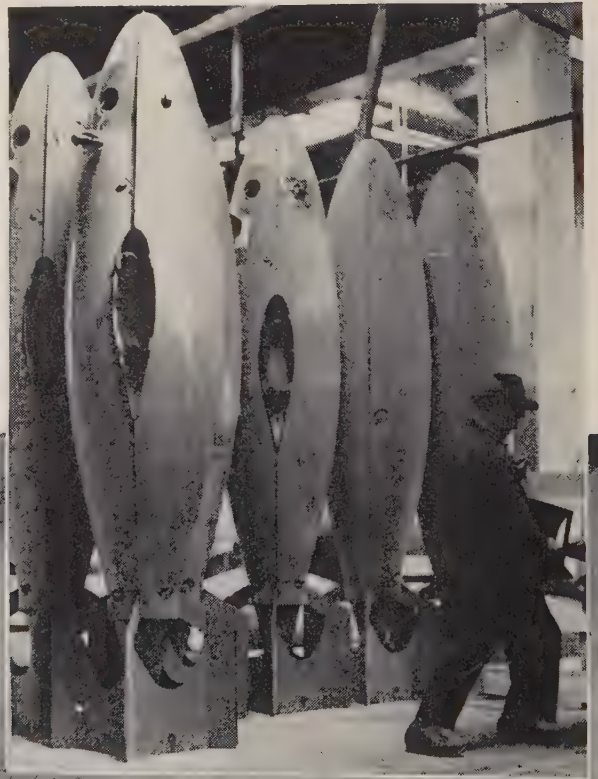
Mosquito bomber at 36,000 feet out over the Atlantic. It dives 1,000 feet, at which point the rocket engine accelerates it to an estimated 900 mph. Instrument recordings are transmitted back to home base and then the rocket dives into the sea.

The XS-1 is an extremely rugged airframe driven by a
(Continued on page 50)



"SLICK" GOODLIN and his flying laboratory

Water

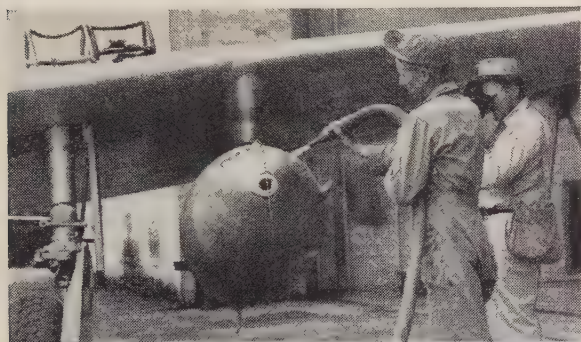


Bombers

By TAMARA ANDREEVA

HIDDEN near the fire they had set in the densely timbered slopes of Montana's Flathead Forest, an anxious group of Forest Rangers watched a *Superfort* drone lazy circles overhead. As the smoke spiraled out of the dense lodge poles, the *Superfort* banked sharply and leveled into a bombing run. The crew settled into the cold, exact routine that had carried it through so many bombing runs in flak-riddled enemy skies.

"Steady now. Airspeed one nine zero. Two degrees left. Hold that. *Bombs away!* That's all, brother."



With an inward yell of relief, the pilot racked the big plane into a sharp bank while the crew watched the smoke spiral intently. Even as the *Fort* pulled around, white bursts appeared over the timber tops and bracketed the smoke. The job was done—now to determine the results.

Forest Service rangers and fire-control experts on the ground raced to check the results of this dramatic use of war techniques in their own endless battle against forest fires. The bombing was a success; the blaze had been extinguished as surely and rapidly as if Paul Bunyan himself had done the trick.

The success was a result of a 22-year-old dream. In 1925, Howard Flint, then chief of the Forest Service's Fire Control, witnessed one of the worst summer fires in the history of the Northwest. It was a "crown" blaze, a nightmare holocaust leaping uncontrollably from tree top to tree top and spreading with the rapidity and fury of a fired arsenal. Ground crews fought the blaze courageously and finally got it under control. But the price was too high. Several men were burned or crippled out of the service. Losses in pack mules and equipment were heavy. Then and there Flint had decided that tree-top fires were not to be fought on the ground, but at tree-top level. He tried out his idea by dropping water-filled paper sacks on flaming lodge pole pines from a low-flying World I *Jenny*.

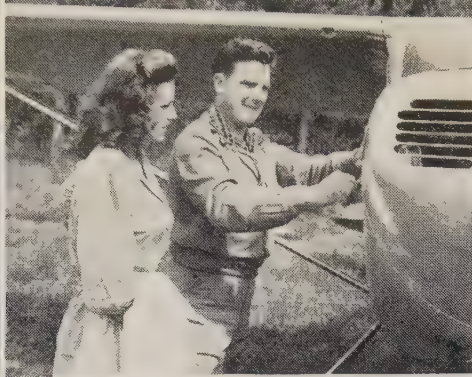
The paper sacks were an unspectacular bust, but Flint did not give up. He was joined in his crusade by David P. Goodwin, (*Continued on page 42*)

FORESTRY SERVICE and the Air Forces combined operations to renew fight against forest fire. B-29's and P-47's, carrying 160-and 320-gallon drop tanks filled with water, pin-pointed burning target, then dropped "bombs" on tree-top fire. Experiment was a success





YELLOWSTONE trip was hatched over cups of coffee



FLIGHT completed in two hours, Jack and his wife check plane's oil supply



CESSNA, owned by the Charlesworths, provided ample space for suitcases

Easy Does It . . . by Plane

Three couples in planes enjoy easy weekend termed impossible via car

MODERN airplanes have warped the whole concept of time and space for the private flyer with time on his hands as much as for the military or industrial man. But everyone seems to associate air travel with *hurry*. Business firms buy expensive planes to send executives scurrying around after more business, and to many the airplane is linked inseparably with the thought of emergency—a means of getting somewhere in a great hurry with your tongue hanging clear to your knees. What people can't seem to realize is that a good modern plane is a swell way to add precious hours to your few days of leisure and comfort.

Although men have learned to fly, and in doing so have created greater needs within themselves to get free of the hectic city pace, they have not yet learned how to use their wings in achieving more

leisure. So what do you find at the airport Sunday morning? Airplanes with cold engines! Stinsons, Navions, Beechcrafts, Swifts, Taylorcrafts, Cessnas, Aeroncas or Pipers—all tied down while their owners are out in the milling traffic swearing at other Sunday drivers and using more gas and oil and energy to get relatively nowhere than they would use in flying a couple of hours to some quiet spot where they could lie back and watch the fleecy clouds roll by.

Seeking a complete change of scenery and climate, yet also wanting a restful pace for it all, three Salt Lake couples took a weekend recently and tried "taking it easy" with two airplanes.

Jack Charlesworth is a young painting contractor. Formerly a B-17 pilot in Europe, he now heads Charlesworth Flight of Utah, Inc., with branches established at the municipal airports of Salt Lake City and Ogden.

A good friend is Charles Lowell, former Major in charge of an AAF search and rescue unit, who became the head of Altair Inc., the Beechcraft distributors for Utah, Idaho and western Montana.

But despite being associated professionally with flying, both Lowell and Charlesworth like the idea of using airplanes for pleasure—a very rare atti-

By BOB ARENTZ

AIRPLANES were parked near the big pines at edge of the field



QUARTERS for overnight were provided at Pond's Lodge on highway to Park



LOWELLS, who flew up in Bonanza, swapped stories with Innkeeper Pond



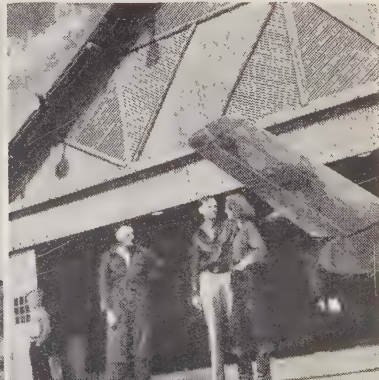


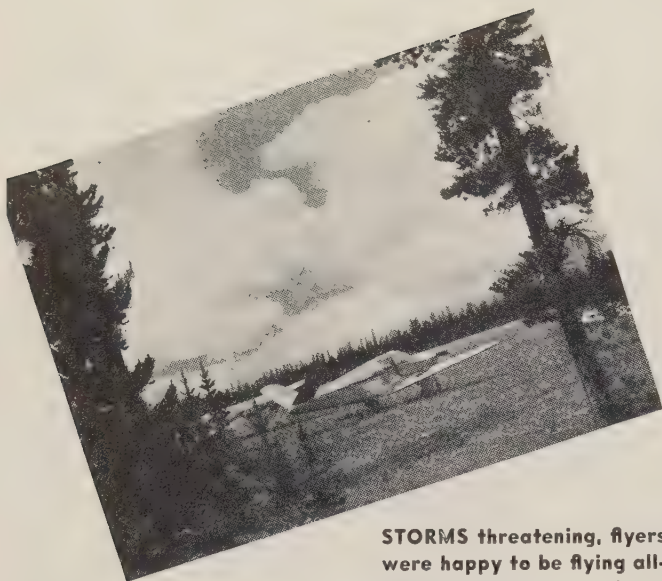
WEST YELLOWSTONE FIELD, west of town, is tricky to use despite appearance, but is just few miles from park

AUTHOR Arentz points out site of mountain home on the banks of Buffalo River

CROP DUSTER Farris, at Idaho Falls, jumped a PT-17 off on 300-foot run

IDAHO FALLS boasts a hangar built entirely of big logs





STORMS threatening, flyers were happy to be flying all-metal and long-range planes

tude among commercial pilots, most of whom would walk before they'd fly anywhere just for fun and without a paying passenger.

Jack and his wife, Shirley, flew their Cessna 140 to West Yellowstone early Saturday morning and Chuck and Bea Lowell followed later in a *Bonanza*. My wife and I, armed with a camera, went along with them in the four-place ship.

Jack and Shirley landed at West Yellowstone 2 hours and 20 minutes after leaving Salt Lake. By road it is 365 miles, and a long hard drive in a car. They had burned about 12 gallons of gas in the Cessna. An economical car would burn about 20, the average car between 25 and 30. The *Bonanza*, having been on a side jaunt along the Snake River and out over Henry's Lake west of Yellowstone, romped in just 2 hours out of Salt Lake City. We used 20 gallons of gas, still ahead of the best car.

You like scenery—a Sunday drive to relax?

Something different? You should try flying along the west side of the Teton Mountains in the cool of morning. But the Tetons don't monopolize all the beauty of such a flight. Straight north of Salt Lake the planes crossed Mount Ben Lomond, beyond Ogden, flying at 10,500 feet over the northern spur of the Wasatch range and then whisked across placid Cache Valley into southern Idaho. North of Soda Springs, the famous Idaho rodeo town where the Henry Stampede was once one of the best of wild and woolly western round-ups, they crossed the cattle ranges surrounding the Blackfoot Reservoir and marshy Gray's Lake. This is a fantastic land of green meadows slashed with black lava river beds arrested in motion countless centuries ago as they poured from or under the cones of dozens of old craters now sparsely clad in the green of tenacious grasses.

The tall and lonely hulk of Caribou Mountain holds a stately sway over the eastern Idaho borderlands and several old mine dumps and a ghost camp diverted the *Bonanza* from its true course northward.

From here we flew down the mountains that hem the southern slopes of Snake River, finally turning north again at Conant Valley and over one of the highest mountain ranges in the Targhee National Forest, a range of mountains not even known by a popular name by the residents of Antelope, Pine Creek Bench and Swan Valley, who live in the mountain shadow. We were at 9,800 feet here and dusting the tops of the pines.

After the Tetons and the Teton River valley, Warm River was next, the gateway to Idaho's great eastern forests—hundreds of thousands of acres of lodge pole pine timber—in what is called Island Park Country.

Here is mile upon mile where not so much as a bare acre of ground shows light green against the dark blue-green of the pines. Over this country the cautious pilot flies (*Continued on page 44*)

LAST STOP on way home was at Call Aircraft in Afton, Wyoming, where planes and field scooters are built



Tricycle CUB



TRICYCLE GEAR for a *Cub*, developed by Smyer and Testerman, gives ship better ground maneuverability and viz

By GENE LANDMAN

THE nearest a Piper *Cub* ever came to not being a Piper *Cub* was the day Tom Smyer and Ray Testerman, a pair of aviation experts in their lines, mounted NC3388N (a J-3 *Cub*) on a tricycle gear. The *Cub* had been up on floats, skis and on its nose when some luckless pilot set it there . . . but up on a tricycle gear just about outdoes anything the J-3 has seen in its day. Ray Testerman of Tulsa, Oklahoma, worked out the engineering problems, while Tom Smyer held the needle.

A tricycle gear on an airplane enables that craft to withstand crosswind and gust conditions during taxi maneuvers with a wider margin of safety than the tail-wheel ship. This reaches a proportion where the tricycle-gear plane can be used by operators of flight schools at times when the ship with tail wheel (the best weathercocking device invented!) could not be taxied forth. For this reason Fixed Base Operator Tom Smyer, owner of Smyer Aircraft Corp., Ponca City, Okla., realized the airport operators throughout the country could use a tricycle gear on their trainer *Cubs*.

The standard gear of the tail-wheel type *Cub* is exchanged, right gear for left side, left gear for right side—take a good look at the accompanying photo. By reversing this fitting, complete with standard shock cords, a change in the point of balance, or center of gravity, is accomplished. By adding a nose-wheel construction under the nose, the *Cub* settles for a level attitude. A protector tail skid is inserted

where the tail wheel would otherwise be—just as an extra safe-guard for the ship's tail.

In landing the *Cub*, the plane is held off with the nose up just a trifle so that the nose wheel does not bear the brunt of the landing shock—this is standard procedure in all tricycle-gear landings. The visibility due to this level attitude is as good throughout the landing as though from the deck of an airliner . . . better even, because the pilot is closer to the runway on which he's landing. Taxiing is like driving a car around—also characteristic of a tricycle gear. Landing airspeed is maintained just a little higher than when bringing in a tail-wheel *Cub* but the added viz and ease in ground control make this speed negligible. Take-off is just plane swell. The *Cub* rolls along, easily controlled directionally. Nose wheel is lifted off by a trifle back pressure (standard procedure) and the ship is allowed to fly itself off, although it can be pulled off prior to its becoming airborne by itself. All other flight characteristics are identical. It might be added this pilot noticed that the *Cub* settled out faster than the *Cub* without the added weight of the nose wheel.

Tom Smyer expects to produce the gear in kits with a price tag of about \$200. CAA certification—Approved Type Certificate—is due any day now. Smyer states the change over from a tail-wheel *Cub* is simple, takes only 4 hours or so, entails very little major alterations. The mech with his A & E can do it. And since airport operators could keep this ship flying on windy days when there would be no business otherwise, Smyer expects other operators to buy the kit and profit by the needling he gave Aeronautical Engineer Ray Testerman.



PROCEDURE for economy cruise, extra range on a Beech Bonanza calls for 25 inches of manifold after take-off

USE cruising climb (1850 rpm), 125 mph, and get 300 or 500 feet above chosen cruising altitude, 12,500 ft



More Miles Per Gallon

By EDWARD CARNEY

THE problem of fuel conservation becomes of vital interest to a pilot when he gets beyond the bounce-drill and local-area stage of his flying and begins to tackle the old X-C's. Economical cruising and fuel conservation become more than mere textbook terms. For the pilot who has a knowledge of their principles they pay off in greater cruising range and less frequent raids on the spot that is so sensitive to the average pilot—his pocket-book. A little time devoted to the methods of stretching your fuel supply will become invaluable when you start putting some distance between your point of departure and destination. All of the principles outlined in this article may not apply to your particular plane, however. If the aircraft you are flying is not equipped with a mixture control or a controllable pitch propeller you will have to rely on other fuel saving practices.

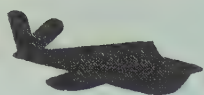
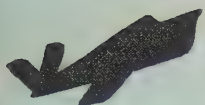
To simplify an explanation of all this, fuel conservation can be broken down into four specific categories: 1) Mixture control. 2) Power settings. 3) Speed, and 4) Altitude and wind effects.

Mixture Control

Intelligent use of the mixture control requires more than a knowledge of in what position on the quadrant to place the lever. To get the most out of your fuel, you must have an understanding of what happens to those little fuel molecules when they are burned inside the cylinder.

A chemically correct mixture ratio of 15 parts of air to one part fuel by weight theoretically will burn completely. Actually some of the fuel and air particles will not unite because the particles are not completely mixed in the combustion chamber. To consume all of the fuel molecules an excess of oxygen must be provided by increasing the amount of air that is mixed with the fuel. This is called "leaning" the mixture and is the basis of economical cruising.

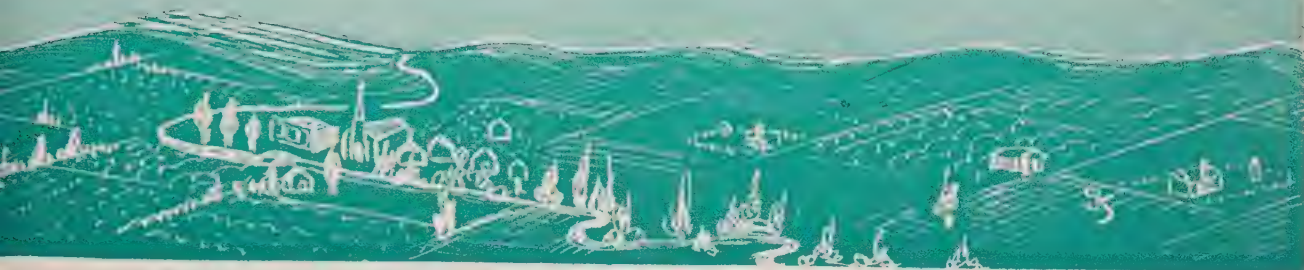
There is a limit to how much the mixture can be leaned, however. Excessively lean mixtures will cause overheating and detonation, resulting in severe damage to the engine. An extremely lean mixture burns so slowly that the charge may con-



CRUISE climb to 13,000 feet will take longer, but is most economical

AT 13,000 feet, drop nose down and, at 12,500 feet (cruise alt.) with 18.8 inches manifold, get 122 IAS

INDICATED 122 mph at 12,500 feet will be 155 mph True airspeed at 1500 rpm. Bonanza will burn 5 gallons per



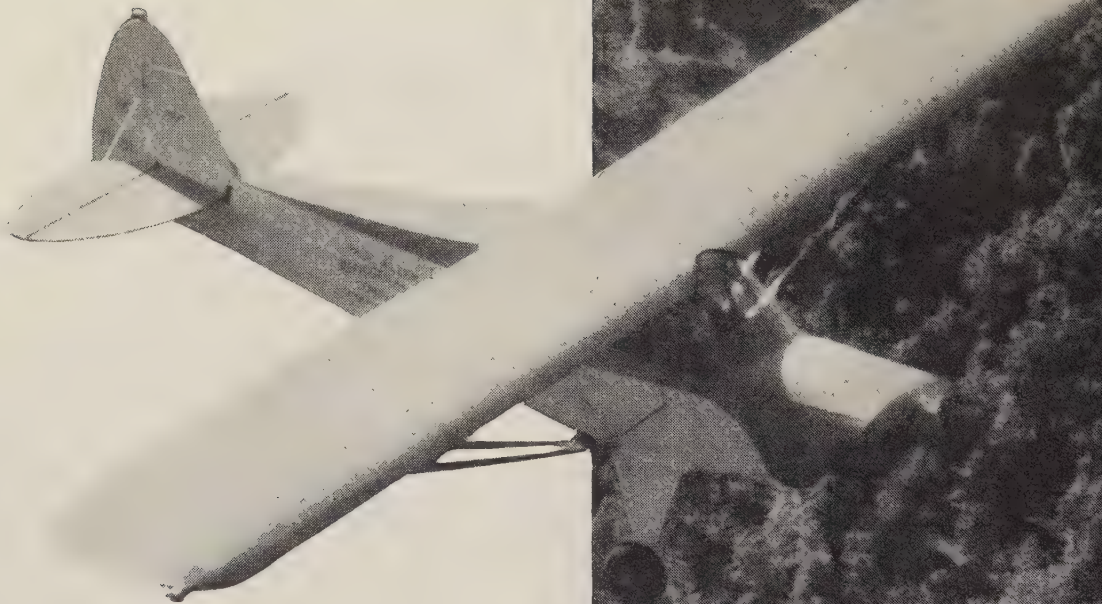
tinue to burn through the exhaust stroke and ignite the fresh mixture in the intake manifold when the intake valve opens. This condition is known as "backfire." Because of this slow-burning characteristic, a lean mixture will burn for longer periods in the combustion chamber, losing much of its heat to the cylinder walls. Since power is derived from the heating and expansion of the gases at the top of the compression stroke, any loss of heat or prolonged burning of the gases beyond top dead center will result in a loss of power.

The unburned fuel particles in an overly rich mixture also will cause a loss of power by absorbing that power-producing heat. The importance of using the correct mixture is obvious, but it is just as important to avoid indiscriminate use of the mixture control.

To lean the mixture of a plane equipped with a fixed-pitch propeller set the throttle for cruising RPM. On constant-speed installations, the propeller control will have to be set at full high pitch. Moving the mixture control lever from full rich toward lean will result in an increase in RPM. The point at which the maximum RPM is noted is the rich best power mixture. Further leaning will not change the RPM before an appreciable movement of the control. *Still further (Continued on page 52)*

MAXIMUM RANGE of the Bonanza, according to manufacturer's recommendations, is 750 miles at 165 mph, cruising at 10,000-foot altitude, with ship's full load





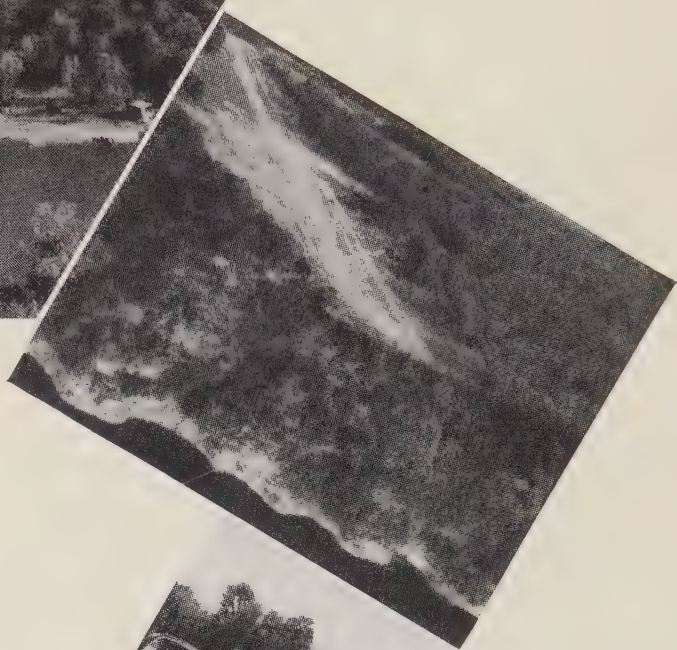
ARKANSAS TRAVELERS ... by Plane

ADAMS FIELD in Little Rock was home base for Paul Allen's Cruiser. Taking off at around 4 o'clock in the afternoon, three fishermen flew a direct route to Al De-Mere's private flight strip near Mountain Home, Arkansas





NORFOLK LAKE, site of many a hunting and fishing camp, teems with fish. As an extra lure for sportsmen-pilots, an L-shaped flight strip is under construction on the shore of Norfolk Lake. Trip up took about an hour

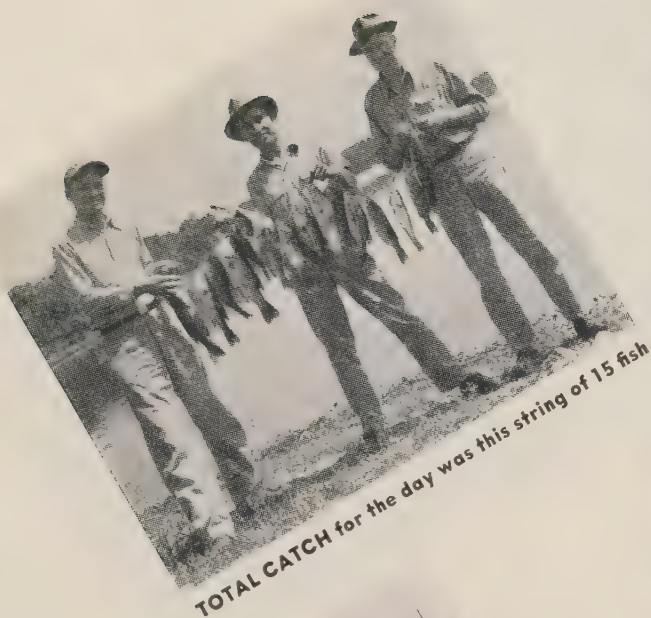


JOHNIE GRAY of Little Rock, Arkansas, has three loves—photography, fishing and flying, and his affections for same are very evenly divided. It was not surprising, therefore, when Johnnie dreamed up a flying fishing trip with three friends who share a similar regard for flying and fishing. There was Paul Allen who owned the Piper *Super Cruiser*, Mac who possessed a masterful touch with the fishing rod, and Lew Hawkins who operated a fishing lodge that was not too far away from a private landing field owned by Pilot-Sportsman Al DeMere. The combination was perfect . . . and the weather was perfect, too, so John, Paul and Mac, laden with favorite rods an' reels and very special lures, took off from the airport at Little Rock and nosed the ship toward Norfolk Lake on the Missouri-Arkansas state line, a distance of roughly 100 miles.

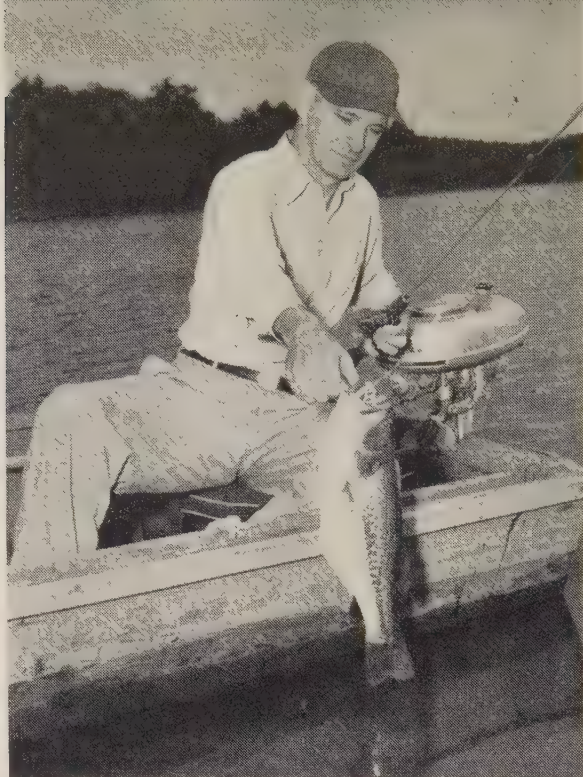
It was mid-afternoon when the boys left the field at Little Rock, and still early in the day when, some 70 minutes later, Paul buzzed the landing in front

PILOT ALLEN buzzed Hawkins' landing on the lake as signal of their arrival. Hawkins drove over to DeMere's field, picked up the flying fishermen and drove them back to his Lodge. Early next morning they broke out the rods

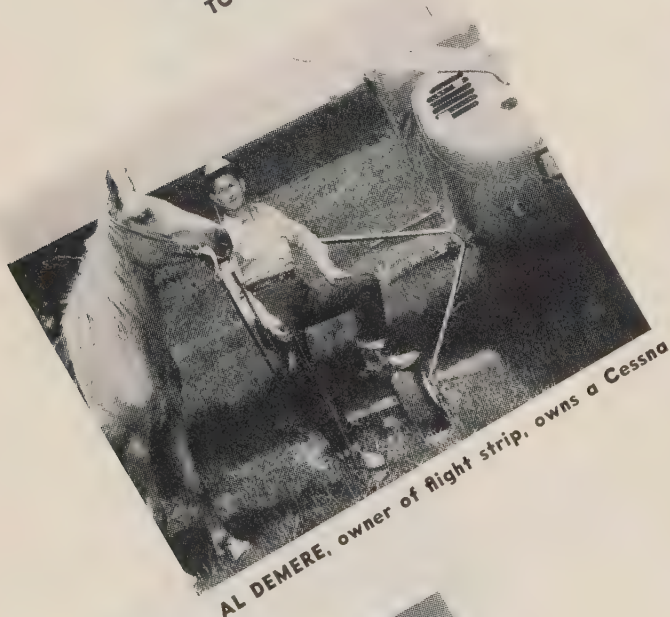




TOTAL CATCH for the day was this string of 15 fish



PILOT ALLEN displayed as much ability as fisherman as he did as pilot by catching a three-and-a-half pounder



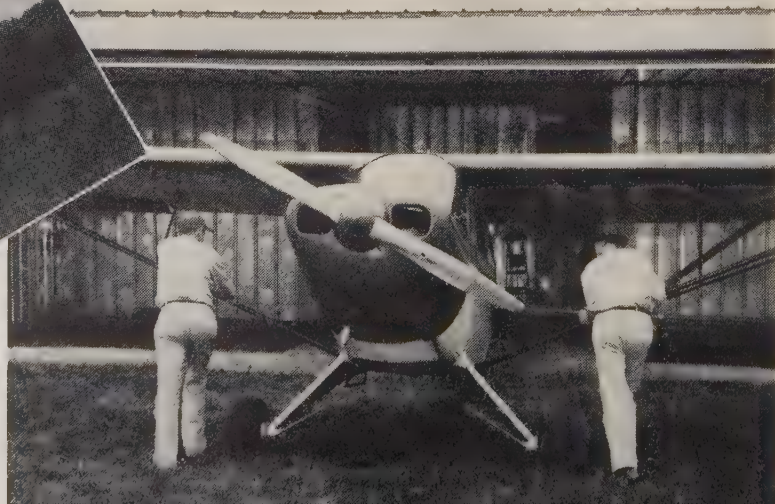
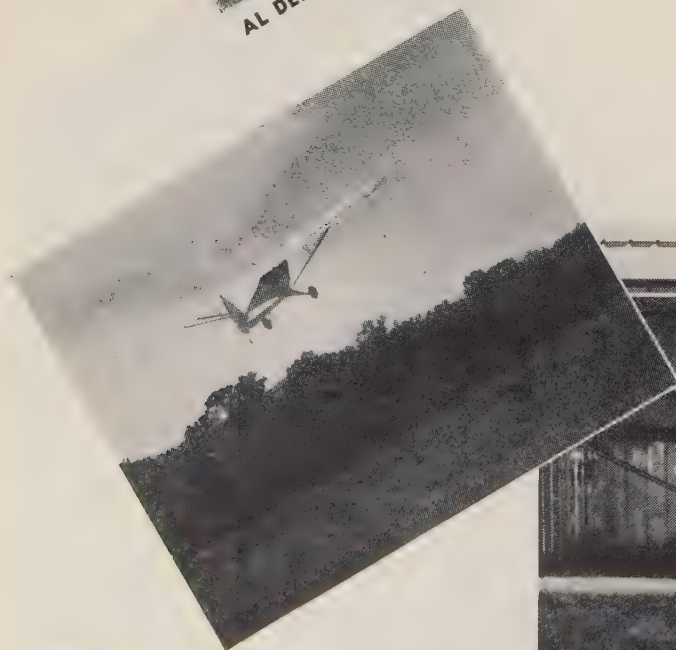
AL DEMERE, owner of flight strip, owns a Cessna

of Lew Hawkin's lodge on the shore of Norfolk Lake. Then, making a 90° turn to the West, Paul headed for Al DeMere's cow-pasture field.

By the time the Cruiser had been taxied into tie-down position, Hawkins was there with the car to pick up his flyer-angler guests and deliver them to Norfolk Lake for a go the next day at some excellent bass fishing.

Some 20 hours and 15 fish later, Paul Allen, Mac and Johnnie Gray were once again back in Little Rock. In a little more than a day's time, thanks to Allen's Piper *Cruiser*, Johnnie's idea and Mac's ability with a fishing rod, the Arkansas Travelers, by plane, had enjoyed a flying fishing trip that netted fish as well as fun. . . . A rarity in itself. ✈

TRIP'S END came late in afternoon when Paul and Mac pushed the *Cruiser* back into its hangar at Adams Field



Ditch the Din

**Lightweight Diehl muffler
reduces pesky plane noise**

IF, IN 1928, no one else was concerned with the problem of reducing airplane noises, Bill Diehl certainly was. A seasoned transport pilot even at that early date, Bill had already designed, built and installed an airplane muffler on an old OX-5 American *Eagle* at the now-long-defunct Arcola airfield in New Jersey. If the records be correct, this was the first time that such a thing was tried.

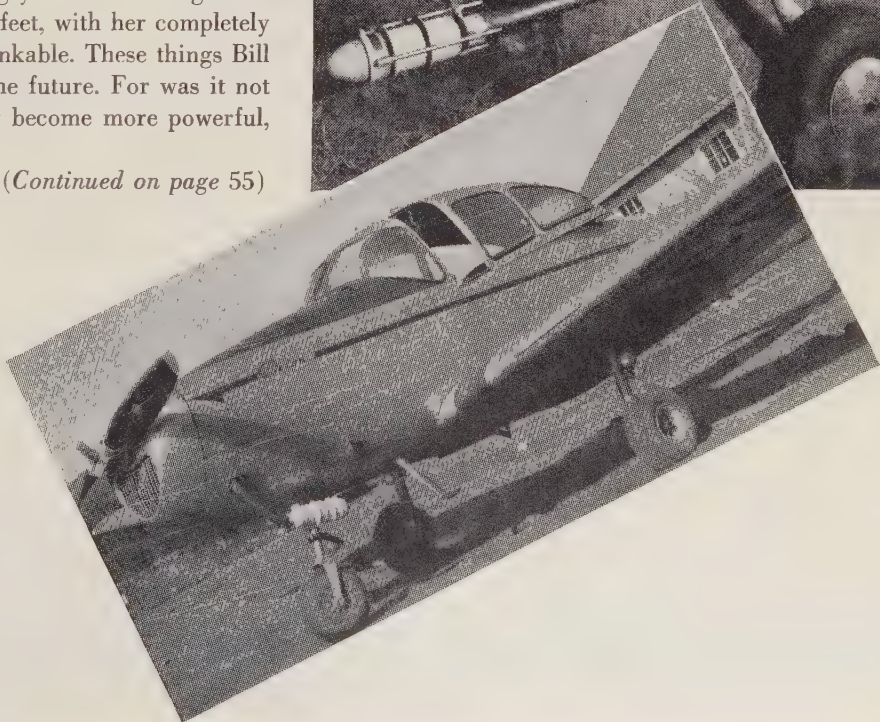
Even in its crude form, the muffler had some qualities unheard of in present-day jobs. It reduced the exhaust noise drastically. It didn't burn itself up with back-pressure, nor did it cut into the horsepower. Quite to the contrary, it actually built up a vacuum in the exhaust chamber, thus increasing the revs to a point where the old OX threw an occasional rocker-arm. But that was no point against the muffler—OX'ers were always shedding things anyway. A little later it was tried on a Wright J6-300 with equally satisfactory results. All in all, Bill's muffler showed great promise.

But who in those days wanted a quiet airplane? Just imagine buzzing the hangars and no one hearing you! Or dashing heroically over the girl-friend's house at 75 feet, with her completely unaware of your presence! It was unthinkable. These things Bill realized, however, but his eye was on the future. For was it not obvious that airplanes would eventually become more powerful, more noisy, and more numerous?

Fortified with time in an abundance, (Continued on page 55)

By H. E. BRENNERT

DEVELOPED back in 1928, the Diehl muffler continues to be one of best on market. Weighing only 6 pounds, the muffler drastically reduces exhaust noise, yet builds up revs. Mounted in slipstream, muffler offers almost no parasitic resistance. This is due to design and discharge of exhaust gases





RANCHER-FLYER

WHEN Jules Bechard, a rancher from the Badlands of Montana, was asked why he'd taken up owning and flying his own plane, he startled your pilot-reporter by exclaiming, "The weather got so bad, we couldn't drive . . . and so had to fly!"

If you've ever had a long-anticipated X-C kicked into a cocked hat (and who hasn't!), you'll understand why Jules Bechard's answer produced a gasp of amazement. But that gasp was shortly reduced to a mere grunt of understanding when Bechard produced the facts.

The Bechard ranch is located at Square Butte, Montana, a place you won't find on your maps. Ranches in this Badlands area come in thousands of acres, not hundreds, and your neighbors are always several miles down the road, not a few hundred yards. Getting to the nearest school and town, several miles away, requires a car that can take the cork-screwing the winding auto trail to town demands.

But distance was not the problem that produced the Bechard family plane, a Cessna 120. It was the roads in that section. On a rainy day, those roads become quagmires of muck that would keep even mudhens on the wing. In those days B.C. (Before Cessna), getting the two Bechard daughters to school meant hours spent pushing the family car out of one mudhole into another. Net result was that when the children finally reached school, it was time to turn around and start back home again. Not to mention the condition of the girl's clothing from having to push through all that mud.

So the Cessna was the answer, and the Bechards took to the air, good weather or bad.

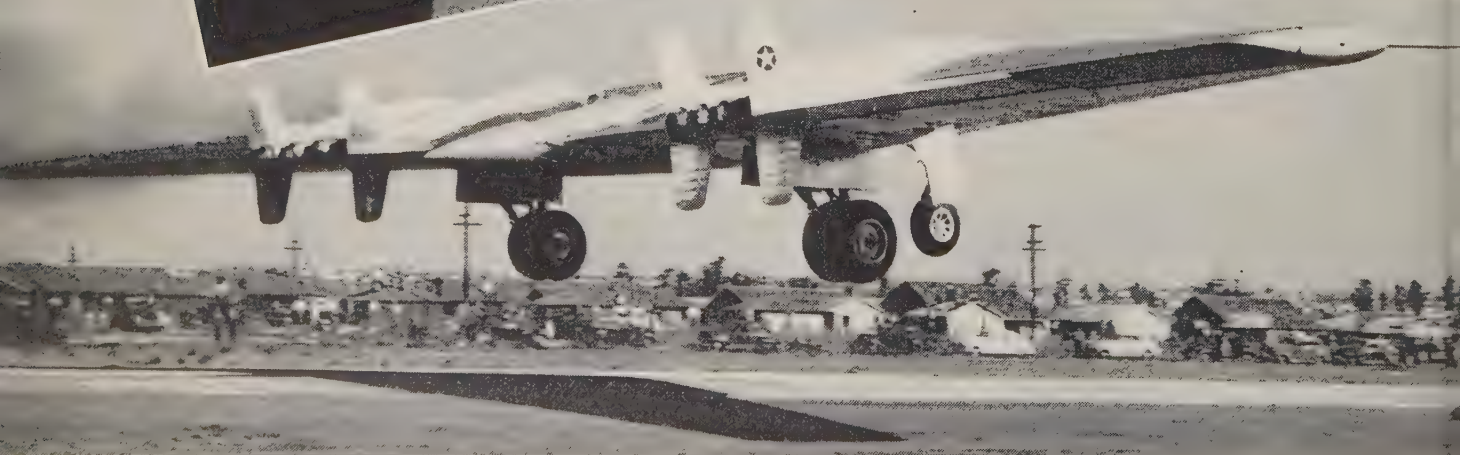
Rancher Bechard was introduced to flying by coyote-hunting friends. A few turns with those flying hunters made (*Continued on page 50*)

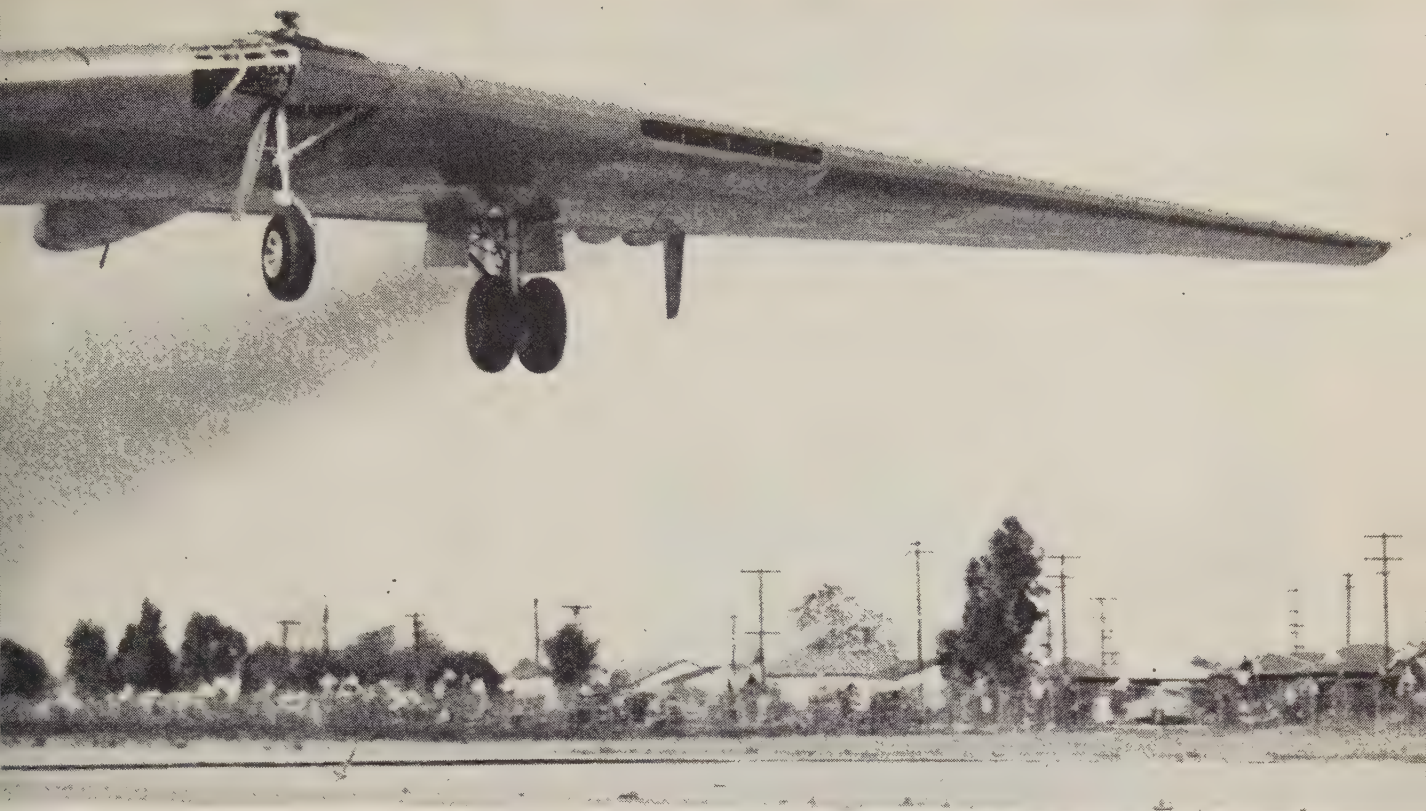


RANCHER BECHARD, whose home is 170,000-acre ranch in the Badlands of Montana, uses his Cessna 120 to fly his daughters to school, to check his property, and for countless other chores made easy by a plane. Bechard built his own airport, is his own mechanic. His two-placer carries three quite easily



Wing





JET FLYING WING, designed and built by Northrop, has a wingspread of 172 feet, gross weight of 100 tons. Its jet engines have combined potential output equal to 32,000 hp. It was designed as a heavy bombardment plane

By DON ANDREWS

Northrop's YB-29 jet wing is called the "design most likely to succeed"

CUTTING swift creases across the Southern California sky these days is a new aerial giant which represents the wedding of two of aviation's most advanced concepts—jet power and the Flying Wing. Now deep in a testing program at the U. S. Air Force's sprawling Muroc experimental base, this plane, the Northrop YB-49 bomber, is turning up plenty of aeronautical data which may have a profound effect on the shape and style of bombers and air transports to come.

John K. Northrop, the pioneering aircraft designer who has pursued the theory of the highly-efficient all-wing airplane with intense fixity of purpose for more than 20 years, appears convinced that the Flying Wing is the answer to a lot of

problems. He is sure that his cleanly efficient all-wing is the "design most likely to succeed," and that once the airplanes are flown for a sufficiently long period of time to demonstrate fully their inherent advantages, Flying Wing bombers patterned after the B-49 and B-35's will become the heavy striking medium of the Air Force, and will earn their place in commercial use.

"A major change from conventional designs of long-range aircraft is dictated by the success achieved to date with all-wing types," John Northrop asserts. "All-wing airplanes are not expected to replace conventional designs for all purposes, but for comparatively large, long-range bombardment and transport types they do offer outstanding advantages."

Like every other worthwhile aviation development, the refining of the Flying Wing design requires research and testing on a continuing basis. Several foreign governments, notably the British, have been attracted by the Northrop demonstration of Flying Wing efficiency, and have started their own research programs to explore the possibility of the all-wing design.

Northrop's program so far has resulted most importantly in the delivery of three giant Flying Wings to Muroc Air Base and the promise of 12 more to come. Two are the XB-35 models with pusher propellers, the third is the (Continued on page 55)

Skyway to

GOD'S LAKE

By JACK CONNOR



GOD'S LAKE—wild, remote, untouched! Its very name a stimulant, like heady wine. Land of big fish and tall stories—of giant bull moose and caribou herds in the tens of thousands.

There it lies on the map of northern Manitoba, stretching its 90-mile expanse of island-studded water toward Hudson Bay, 350 airline miles north-east of Winnipeg.

Yes, we'd heard of this lake. Her fame had spread before her on a canoe trip down the Nelson river to Hudson Bay. Our Cree Indian guides kept talking of giant 50-pound lake trout and tackle-busting northern pike.

"Biggest fish you ever saw in God's Lake," they told us.

Then, one late June day five years later, six of us were peering out the windows of a Northwest Airlines plane bound from Minneapolis to Winnipeg. Our long-contemplated assault on this lake had begun. The dream of years was about to be realized.

We saw Tom Johnston in Winnipeg—head of the Manitoba Tourist and Information Bureau. He was frankly pessimistic.

"There are no roads in our north country," said Tom. "You've only three ways of getting to God's Lake—by canoe and portage in summer—a long,

GOD'S LAKE in northern Manitoba, brimming with giant trout, northern pike, provided fishermen a lot of good fishing, good flying





CANADIAN PACIFIC AIRWAYS, operating freight and passenger service, flew men to God's in a large Bellanca

tough trip. By tractor train in the winter. Or by air."

He suggested we contact Canadian Pacific Airways, operators of a freight and passenger service on a schedule that included but two trips to this fish-packed lake a year, merely to maintain a franchise. Of course, we could charter a CPA plane and fly in if we wished. And that's what we wished!

We rushed to the Winnipeg CPA offices. Next morning a big 10-passenger Bellanca on pontoons was awaiting us, riding at quiet anchor in the bay of Lac du Bonnet. This was the seaplane base for Winnipeg, 70 miles northeast of the Manitoba capital.

Carefully, every article of duffel—sleeping bags, rods and reels, tackle, cameras and grub—was weighed, then stowed aboard. Shorty, our pilot, climbed in and started the

ship's big 850-hp engine. We taxied out into the bay for a take-off into a north wind, then swung around.

The excitement of anticipation was strong in our blood. Ted Culbertson was like a child in his glee, matched only by the exuberance of Wally Halstead and Fred Carlson. Dr. John Moe, more composed, busied himself shooting movies of the take-off while

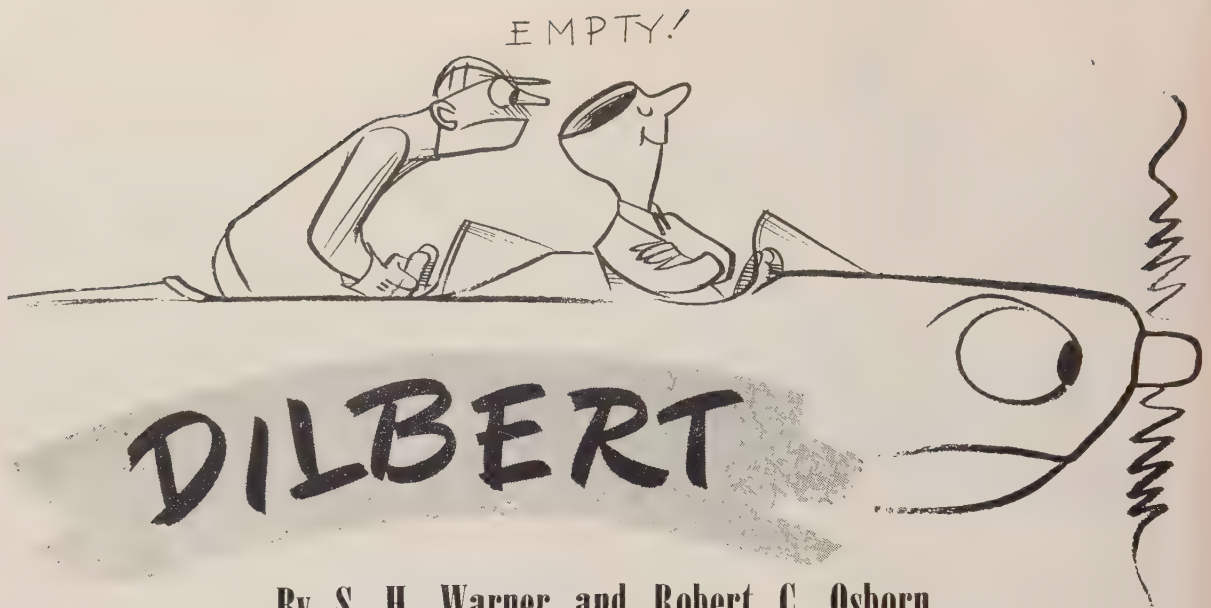
Armand Chartier and I merely gawked at the proceedings.

Up, up over the lake we winged, headed north into a dark and foreboding cloud bank. Soon an impenetrable mist enveloped us and Shorty pulled the ship up to 7,500 feet to fly above the soup. But more clouds were piled upstairs. We eased back to 500 feet to get under the stuff and sped on, seemingly skimming the very tops of the trees.

Be- (Continued on page 56)

**TRAVEL to God's Lake must be by plane.
No roads traverse wilderness to God's**





By S. H. Warner and Robert C. Osborn

Parable Of The Wasted Shekels

Now there dwelt in the village of Podunk a youth named Dilbert who did hanker greatly for an airplane. This desire grew so strong within him that he even became willing to work so that his wish might be soon fulfilled. Therefore did he place himself in bondage to a man of many acres.

Diligently, for two long years he did labor and sweat, and thriftily husband his shekels. Thus it came to pass that on a certain day he did plunk down these shekels before the owner of the surplus property and there was given unto him the airplane of his choice. Dilbert then was filled with joy and

did exclaim, "Life can be beautiful!"

With infinite care did he inspect his new treasure and then give it test flight, after which he did stow his

luggage behind the pilot's seat and proudly set his course for home. As he did ride through the air, he made much unseemly noise. "Boy, oh boy!" he exulted, "Wait till the lugs back in Podunk cast their glimmers on this baby!"

'Tis sad to relate, but the lugs did never see the child. When he made his first landing for gas, Dilbert did allow his airplane to drop from under him and bounce. Truly, this was not a great bounce, yet sufficient it was so that the seat did give way and suffer him to fall against the instrument panel. Before he could recover the plane did make a turn like unto a great cart wheel and fall in a heap.

There was great sadness in Dilbert's heart. Even the spares which were sal-



"Life can be beautiful . . ."



vaged from the wreckage did bring in but enough to repay the doctor for his iodine and tape and to purchase passage on the night train back to Podunk. But Dilbert's cup of misery was not yet full. Investigators of the crash did find that the pilot's seat was intact and that the pins which held it in place had not been secured properly.

When report of this was brought to Dilbert then did he groan and gnash his teeth, for he remembered how he had removed those pins to stow his luggage behind the seat. He it must have been who had not replaced them properly. None other was to blame. The pins had been difficult to reach and since they did not slide easily, he had but pushed them in far enough to hold the seat in place. He had thought it mattered not. Vibration

must have loosed them so that the deceleration during the bounce had caused them to yield at the most critical moment.

Remembering all these things, so great was Dilbert's anguish and remorse that attendants were forced to hold him, lest he do unto himself bodily injury. Even as he boarded the Podunk train, he was seen still to rend his hair and call himself all manner of vile and evil names.



"Meet Dilbert . . . ole bird - brain himself"

Bird Brains—Seemingly, the greatest hazard a student pilot faces after solo is his own egotism. Since this is purely a psychological hazard, like so many others, it is entirely unnecessary.

I'm referring to the irresistible urge which makes (Continued on page 58)



"It helps to put the winner down."

Water Bombers

(Continued from page 23)

assistant chief of the Forest Service's Fire Control. In spite of public apathy and lacking funds, the pair continued the experiments, graduating from paper sacks filled with water to paper sacks filled with foamite. Results again were discouraging.

Forest Service had fought continually to reduce the time needed to get fire fighting men and equipment to the scene of a blaze, once spotted. The difference between a burning snag, lightning-fired, and a mountain-side inferno that a thousand men could not control was often a matter of three hours. No experiment was too farfetched, no improvement or change in methods too slight if it promised to cut down the time between the spotting and the beginning of the actual fighting of the blaze. Paper sacks filled with foamite were promising, but accuracy was impossible, and, too, the sacks carried too little chemicals to dampen the smallest of fires, should a direct hit occur.

High-speed trucks were especially designed and built to rush mule trains over mountain roads to trails nearest the fire. Pack mules were trained until they had to be treated like prima donnas, and kept on ready, constant alert during the fire season, waiting for any possible emergency.

Courageous young firefighters encased in canvas and steel masks, loaded down with special equipment, risked their necks time after time to pioneer smoke-jumping. Fires in rugged back country, hours from trails, were often controlled by teams of these highly trained men who jumped into flaming timber. But the wind could drift smokejumpers a mile from the fire, or they could spend hours extricating themselves from tree tops where their chutes were snarled. And in those hours a blazing tree could become a half acre of hell, hopelessly beyond the smokejumpers' control. Often, thousands of acres were aflame by the time toiling pack trains and men could reach the fire site by trail.

War bombing equipment and crews, combined with know-how, Goodwin and Flint argued, might save these hours and hold down the fire until smokejumpers or trail parties could reach the fire and stamp out the last sparks. With the war's end, Goodwin and Flint made a beeline for the Air Force Headquarters. Their water bombing could be a success if the sacks or their equivalent in metal could carry enough water. They could not possibly fail if a volume of water could be dropped on a flaming target with a degree of accuracy, and force. Accuracy was especially important for they did not intend the water bombs for large areas, but just as fire-

checking agents before small fires could become major disasters.


Before they could graduate to the use of wing tanks filled with water and dropped from low-flying *Superforts*, Flint and Goodwin experimented with various fire extinguishing liquids and mixtures such as foamite, water, sand, and earth. All the while water-bomb modification went on in the Forest Service's own machine shops in Missoula, Montana. Recently one of the major improvements included addition of tail fins to control the bomb's flight, making it the first tailor-made bomb in logistic history.

With the AF's cooperation, the first tests were held at Elgin, Fla., then were transferred to fires' natural range at the Flathead Forest, Montana. One of Goodwin's early water-bombing theories was that the bomb might be more effective if exploded *over* instead of *on* the target. In that way, he said, it would put out the fire much like a man snuffing out a candle.

After exhausting the water bomb's possibilities in ground bursts over various types of fuels such as pines, grasses, and chaparral. The AF put its highly accurate Norden bomb sight and the top secret radio-operated proximity fuse at the Forest Service's disposal. The bombsight made it possible for forest-service pilots to water-bomb with complete accuracy. The fuse let them set the water bombs for explosions at any desired height over the target. B-29's and B 25's were pressed into service for the actual bombing, while the P-47 pursuits were used to spot the fires.

The "bombs" were made from fighter-plane drop tanks of 160- to 320-gallon capacity. Two P-47's and a B-29 were assigned to the Great Falls Air Base to work with the Forest Service. The 47's carried two wing tanks, and the B-29's, eight. In tests to discover the characteristics of these new bombs, the crews found they had to reach new levels of skill far beyond any they had needed in combat. Pin-point accuracy in summer-heated mountains with thousands of feet of elevation differences in seconds of flight, and extremely turbulent air—that was a big order, brother.

Tests on bomb characteristics completed, the crews spent the rest of the summer of '47 testing on planned fires, and on reported fires in the back country where even a mule pack train finds it tough going. A variety of extinguishing fluids were tested to determine which, if any, was most effective. Pursuits spotted the fires and attacked them first, then called on the *Forts* if more bombs were needed.

Not every fire spotted needs such drastic treatment, however. Thousands of lightning-caused fires, common in the summer Northwest, and spotted near forest trails, ranger stations, or roads, can be reached and put out from the ground, or by "smokejumpers" dropped from Forest Service planes. Many others are so located that there is almost no danger of the fire spreading quickly. But critical blazes which sweep across thousands of acres of timber that America can no longer afford to lose can be suppressed in a matter of minutes by the new water bomb. The water bomb may at last be the answer to a fight against four-alarms that has been a call-to-arms in the Forest Service since its inception. The experiment in Montana's Flathead Forest proved that. 

SKYWAYS



"But how was I to know his plane was equipped with an automatic pilot?"

DODSON

MC DONNELL AIRCRAFT and the Air Forces recently introduced the world's first ram-jet helicopter. Called "Little Henry," this 'copter weighs only 310 pounds and has a forward speed of 50 mph. The rotor-tip ram-jet power unit, attached to the tip of each rotor, weighs only 10 pounds.

BRITAIN'S first commercial helicopter, produced by the Bristol Company, is a four-seater designated as Type 171. A feature is the rotor which was designed to have high moment of inertia and high rpm. This provides rotor with very high kinetic energy to insure safe forced landing.

NEW... on the wing

PERCIVAL PRENTICE, a new basic trainer, is another British design. Called an all-weather trainer, the first to be specifically designed in line with RAF's new all-weather training scheme, the *Prentice* is equipped with Standard Beam Approach, VHF and a full blind-flying panel.

NEW CESSNA 170 is now undergoing flight tests at the Cessna plant in Wichita, Kansas. A four-place plane, the new ship is powered by 145-hp Continental engine and, according to present plans, will be priced at \$5475.00 fly-away Wichita, making it one of the lowest priced four-placers.



Easy Does It

(Continued from page 26)

along the railroad's narrow slash, or wanders west a bit and tags along the winding highway where tired motorists curse a road filled with chuck holes.

Placed here and there are U. S. Forest Service airports and you are welcome to land on them. The Charlesworths, Lowells and Arentzes happen to be people who can look at schools of trout without too much frustration because they are in protected waters, so we stopped by Big Springs on one of these Forest Service fields. A 10-minute walk took us to a bridge over the springs where a large river runs directly out of a forested mountain. Here, in placid, crystal-clear water 3 feet deep are giant trout. Well, perhaps not *giant*, few of them weigh more than 10 or 12 pounds, but when few of them weigh *less* than 5 and they come in schools by the hundreds, it gives an illusion of something special. Watching them fight over slices of bread is fun and you'll be glad you stopped by to have a look.

From here to such well-known Park spectacles as Old Faithful Geyser is only a few minutes' flying time and when you follow the roads and valleys that lie beneath you no hazards are to be encountered.

Some day all the horse-and-buggy enthusiasts in the head positions of the National Park Service will die or blow away and perhaps men now in Park Service with air force backgrounds will have authority to okay construction of landing strips in the vicinity of such places as Old Faithful.

Once, the older heads insisted on horse trails only. Then finally people used to automobiles got in power and roads were built without destroying the park's value.

Eventually airports will come without destroying it, either, but as it stands now, the horse-and-buggy era still dominates the National Park scene and you'll have to land outside the park at the present time.

The fact that there are airports in the areas controlled by the U. S. Forest Service and none in areas controlled by the Park Service shows one of the most pertinent points of difference in the attitude of the two governmental services—one advocating conservation of natural resources *with use*, the other insisting on conservation *without use*. One says let's get the most good while preserving our natural heritage, while the other says, you can look, but don't touch. I'll take the Forest Service for myself.

Forest Service Field

And you will take the Forest Service Field at West Yellowstone when you fly out that way. You drive into the park from there if you want a close-up look.

The field is okay—6,800 feet long and plenty wide. A fact to remember though, is that the air in those parts is generally turbulent and whimsical, or deader'n a door-nail. Being about 6,800 feet above sea-level, either condition makes things interesting for the pilot. It looks absolutely flat from on top, but when you come in you find it drops 100 feet at the west end. This expedites landing to the east, but . . . taking off on a hot summer day is something else again. Landing west you approach over town and the pines, 100 feet high. It's best here to keep a spot of power on, especially when the air is turbulent. Power wheel landings are probably the best technique for a stranger to the field, but it depends a lot on experience.

This makes a good place for a beginner to take some dual on high-altitude tech-

nique and a certified instructor can be found some place around town unless it happens to be one of those rare moments when he is actually at the airport.

You'll find that natives aren't prone to hurrying around here, except those scratching diligently for the short three months of the tourist trade, on a get-it-while-the-getting's-good standard American principle of business. The flight operator does not belong in this category. He's a very good pilot and a mighty nice guy besides. A stranger to these parts could well profit by flying with him or really buying some time.

All-Way Landing

As the three wind socks were each pointing in a different direction when Jack got there, he had to guess and got a down-wind guess out of it, with a squall front moving in from the west. Going around up-hill and down wind is quite a stunt, but he was more than equal to it. Some smoke from a sawdust fire in the timber of the town, just adjoining, was insistent that the general air mass movement was from the southwest, so he landed in that direction. Five-wind-shifts-in-the-pattern-later the *Bonanza* touched down and sure enough, the wind finally turned out to be from the southwest, though it was worth anyone's guess just under the tree-top level.

Five minutes later, about 10 a.m., it started to snow. A half hour later the sun was shining and it was raining like hell. To simply state, "This country is noted for the variety of its weather," is an understatement.

Jack and Shirley Charlesworth first met at Pond's Lodge on the Buffalo River about 30 miles south of West Yellowstone. And before their marriage Shirley had worked there one summer. So, despite reservations and solid booking until late next year, and with every cabin scheduled a year in advance, the gracious Pond family by some means conjured up an empty cabin with four rooms, a kitchen, a front room and three double beds.

W. Williams, agent for the Hertz-Drive-It-Yourself system in West Yellowstone, had a brand new Mercury station wagon for rent—so the day was a success. Baggage aboard the Merc, planes tied down, we headed for Pond's at a leisurely pace. Actually we could have stayed at Big Springs, which is much closer, and been picked up by a car from Pond's, but we'd wanted to land at West Yellowstone anyhow, so did it that way.

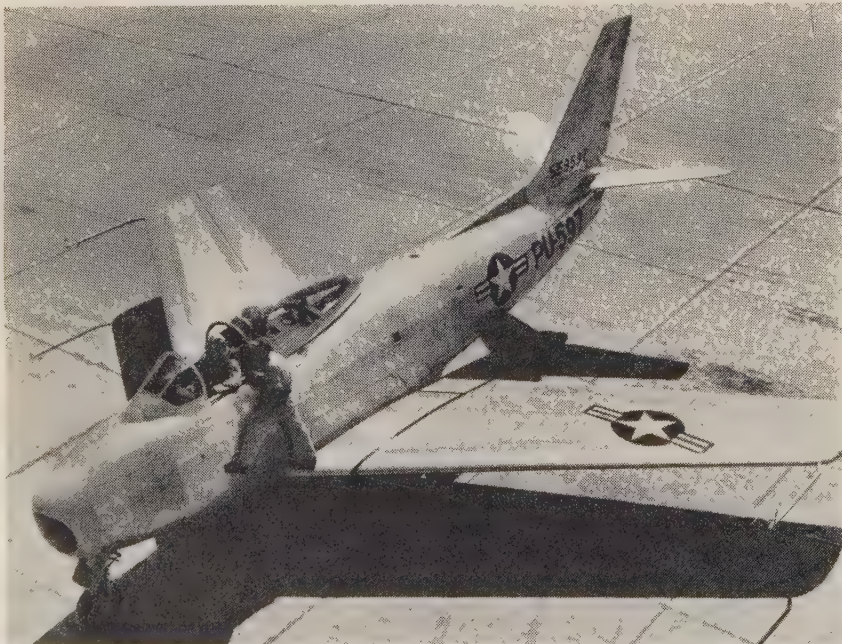
We spent the rest of the afternoon and evening loafing by the river, walking through the pine timber so thick you can't see into it more than a few feet, and finally dancing with quite a large crowd in the Saturday night melee of the bar-and-ball room at the big log lodge.

By using airplanes to get there, we had nearly the whole two days to take it easy and rest, instead of furiously hurrying to get there as you would in a car, then adding to your fatigue by trying to enjoy what was available after such a trip and finally capping the exhaustion by a scramble to get back for work Monday.

And there's the key to the whole darn thing. We were until 2:30 p.m. Sunday getting back to West Yellowstone and off the field. Leaving that late by usual means, we would have arrived home long after dark.

Flying direct we could have landed in Salt Lake before 5 p.m. with the Cessna and by

(Continued on page 49)



NORTH AMERICAN XP-86

Somewhat startling feature of North American's new USAF fighter is the 35° sweep back to the wings and tail assembly. This reduces drag to a minimum and enables plane to reach higher speeds. Powered by a GE TG-180 jet engine, it is in the "600-mph class"

Aviation Forecast for 1948

(Continued from page 20)

for this action to be good. Bell expects the commercial helicopter market to continue to grow in '48, to be better than 1947.

Bellanca Aircraft Corp.

New Castle, Del.

Military: Company does not at present hold any military contracts. Attempts will be made, however, to secure such contracts to supplement Bellanca's 1948 operation.

Commercial: None reported.

Personal Plane: Bellanca will continue to build and market the *Cruisair Senior*. In addition, development is going forward on a four-place companion plane to the *Cruisair* and it is hoped that this ship will get into production this year. The new Bellanca will be powered by 190-hp engine and it is expected to be one of the best four-place planes on the market.

The 1948 market, according to Bellanca thinking, will at least equal that of '47. Possibilities are good, too, that this year's market will be better than '47's due to the using up of war surplus planes. Sale of war surplus ships in '47 reduced sales of new planes. With this factor eliminated, the personal plane market should show a decided improvement.

Boeing Aircraft Co.

Seattle, Wash.

Military: The B-50 *Superfortress* (faster and more powerful version of the B-29) and the C-97, an Army cargo transport version of the *Stratocruiser*, will continue to roll off the Boeing assembly line this year. Two experimental six-jet bombers (XB-47) will be completed for the AF early in '48 and will undergo extensive testing before any definite plans for production are made.

Commercial: Boeing's Model 377 *Stratocruiser*, a double-deck commercial transport capable of carrying 114 passengers at cruising speeds of from 300 to 340 mph, will come off the assembly line in Seattle following its Type Certification by the CAA. Fifty-five Model 377 *Stratocruisers* are to be built, with chances fairly good that this number will be increased. Some freight versions of the 377 may be built for cargo-line operations. There is nothing definite on that at this time.

Personal Plane: None.

The outlook for Boeing this year is good by reason of production deliveries of army bombers and transports together with deliveries of the *Stratocruiser*. Boeing's '48 production will show a decided increase over its '47 figure. Total production at Boeing split between 70 per cent military and 30 per cent commercial.

Cessna Aircraft Co.

Wichita, Kansas

Military: None reported.

Commercial: None reported.

Personal Plane: A full line of Cessnas will roll off the lines this year. Deliveries of the new 1948 model Cessnas began early in January. Although similar in most respects to the '47 ships, the new model for this year (in the 120) features certain design improvements to make it more fool-proof for student operations. The Model 140 is powered by 90-hp Continental engine and is more than 5 mph faster than the '47 version. It offers better take-off, more climb, more speed and a quieter operation. The big news the way of completely new aircraft at Cessna this year is the Model 170, a four-place plane powered by 145-hp Continental engine. Selling at \$5,475, this new 170 is the low-cost four-placer to complete Cessna's full line. Deliveries on the 170 are expected to begin in March. The larger Cessna 190/195 for this year is the new ship that was announced during the summer of '47. Deliveries that started last August and will continue through this year.

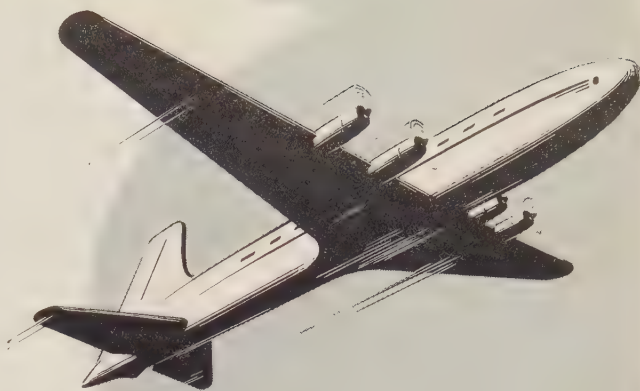
Cessna enjoyed a nice profit of \$371,965 for 1947, and the company expects to do a gross business in '48 substantially larger than that of '47. The Cessna Company is entitled to congratulations for holding the enviable position of being one company on the right side of the ledger. This is a position they will undoubtedly maintain in the '48 operations.

Consolidated Vultee Aircraft

San Diego, Calif.

Military: Convair is engaged in several confidential projects for the Air Force and the Navy. These projects will advance in '48. As far as production for the military is concerned, an Air Force order for 100 six-engine B-36's will be completed in 1948. The B-36 is the 165-foot (length) bomber that is powered by six

(Continued on page 46)



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Non-Veteran ☐

Aviation Forecast

(Continued from page 45)

3,000-hp Pratt & Whitney pusher-type engines. This ship is being built at Consolidated's Fort Worth plant. The all-metal folding wing L-13 liaison plane will continue to come off the production line at Convair's San Diego plant. The AF has ordered 146 of these ships. For some months into 1948, Convair will continue to flight test the 400-passenger XC-99, military transport.

Commercial: Eleven domestic and foreign airlines have ordered a total of 178 *Convair-Liners*. Delivery on these is expected in '48. The *Convair-Liner* is the 40-passenger 300-mph twin-engine transport on the assembly line at the San Diego factory. A commercial version of the XC-99, it has been reported by sources other than Convair, will depend largely upon official acceptance of the military version.

Personal Plane: Convair's experimental four-place Flying Automobile will continue to be flight tested in 1948. No definite production plans have been announced, nor is it considered for production this year. The Flying Auto's recent accident did not result in serious damage, and it is not expected to cause any great delay in its testing program.

Consolidated—Stinson Div.

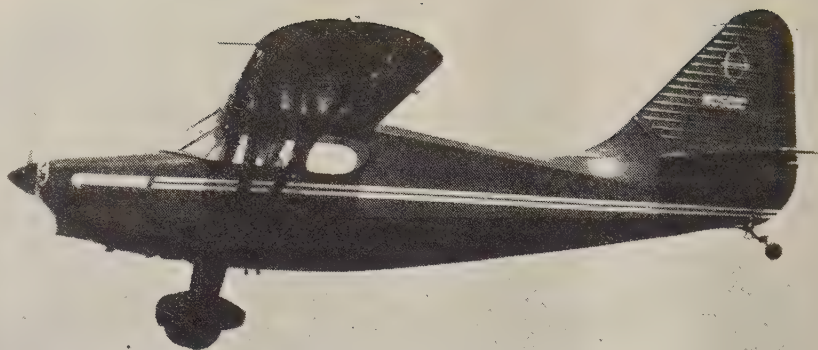
Wayne, Mich.

Personal Planes: The 1948 model of both the *Voyager* and the *Flying Station Wagon* incorporate some 50 changes and improvements over the 1947 models. Both models are four-place airplanes designed and built for utility. Stinson plans to bring out a new model each fall, i.e. the new 1948 model went into production in September of '47; the 1949 model will go into production September of '48.

All personal aircraft production during 1947 amounted to about 16,000 units. The industry's '48 production, according to Stinson's estimate, will be between 12 and 14 thousand.

Curtiss-Wright Corp. New York, N. Y.

Military: One of the top projects with C-W



STINSON'S '48 version of the Voyager has 22 per cent greater range than the '47

is the XP-87 jet fighter which will undergo tests at Muroc during early part of this year. Production of this ship is dependent upon its acceptance. New developments in field of jet aircraft will be announced in '48, one an experimental jet for the Navy.

Commercial: The CW-32, cargo ship, is still in the mock-up stage and whether it is developed for commercial use or not is dependent upon military acceptance of the plane and upon the interest displayed by commercial airline operators.

Curtiss-Wright's engine division is developing both reciprocating and jet units. One of the jet projects is the development of what is said to be the world's largest gas turbine. C-W's Prop division is testing a propeller (with swept-back blades) to operate in the 600-mph zone.

As of the latter part of 1947, Curtiss-

Wright had a total backlog of \$130,000,000. The whole answer to Curtiss-Wright's 1948 production lies in the results of the President's Air Policy Commission report, and the action taken thereafter by Congress.

Douglas Aircraft Co., Inc. Santa Monica

Military: Throughout 1948 Douglas will continue to build versions of the Navy AD-1 dive and torpedo bomber. Present plans do not call for the production of any other military ships. There is, however, a great deal of highly restricted research and development work being done at Douglas and this will continue throughout '48. Practically all of this work has to do with supersonic speed aircraft: *Skystreak*, *Skyrocket*, XS-3, etc.

Commercial: Spring will see the completion of present DC-6 orders and, unless more orders are forthcoming, it will not continue in production much beyond April or May. There no definite plans at this time regarding the DC-9, a twin-engine transport to replace the DC-3. Should Douglas decide to build the DC-9 it probably would not get beyond the prototype stage in '48.

Personal Plane: None reported.

As of January 1, 1948, Douglas had a total backlog of \$150,000,000. One-fifth of this was commercial, one-fifth experimental and development, and three-fifths, military production. About one-third of the latter figure, however, represents airplanes practically completed and ready for delivery. \$150,000,000 represents maximum orders held by Douglas at this time.

Engineering & Research Corp.

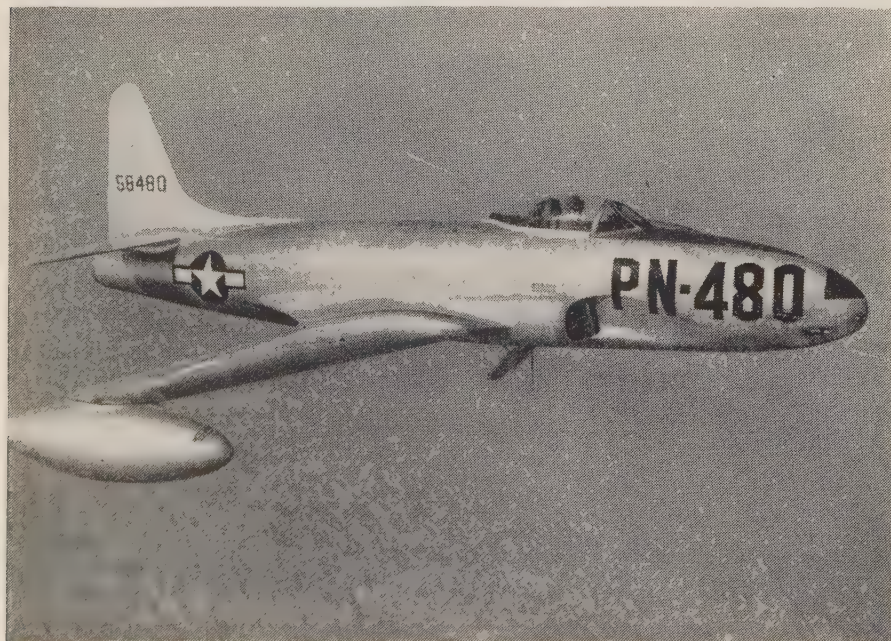
Riverdale, Md.

(Note: Sanders Aviation, Inc., has acquired exclusive international sales, service and spare parts right on the Ercoupe airplane. At the present time Sanders is doing the selling of the Model 45 CD *Ercoupe*, and the engineering work on the new 1948 model.)

Military: None reported.

Commercial: None reported.

Personal Plane: The new 1948 model *Ercoupe* will go into production early this year and



LOCKHEED'S P-80B will continue in production until sometime during the fall of 1948

will be marketed by Sanders, Inc. The new *Ercoupe* features 85-hp engine (available with fuel injection), two-way radio, aerodynamic improvements, better ventilation, and several other minor refinements of the '47 model. Price is expected to be somewhat higher than the present-day quote of \$3,450 f.a.f. *Ercoupe's* new ship is the four-placer which will see production this year. It will feature all-metal construction and the well-known non-spinning characteristics. Price will be about \$6,000. The four-placer looks like a sedan-type version of the coupe-style two-place *Ercoupe*.

Sanders Aviation's thinking in the matter of production and sales is very cautious at this time. However, the company is looking forward to a good year, a more stable and a healthier-for-the-industry trend in personal aircraft sales.

Fairchild Corporation New York, N. Y.

Military: About 80 per cent of Fairchild's business is of a military nature and will continue to be so during 1948. The Flying Boxcar, C-82 *Packet*, will come off the production line until the end of July. At that time Fairchild will move into a production schedule on C-119. This contract approximates \$22 million. Both the Army and the Navy have expressed great interest in Fairchild's new high-performance, low-wing XNQ trainer, thus it is highly probable this ship will be in production for either the AF, the Navy, or both, in 1948. As with several other corporations, a great deal of Fairchild's military work is top secret. Research, experimentation and development of new types of powerplants for both the Bureau of Aeronautics and Bureau of Ordnance continues throughout '48. Fairchild's Pilotless Plane Division, (guided missiles for Navy), Al Fin Division, NEPA Division and Stratos Corporation, all part of Fairchild, anticipate a big year of development. The NEPA Division's work involves determining a means whereby atomic energy can be applied to aircraft propulsion. This work is being done under contract with the Air Force, and in cooperation with other aircraft engine manufacturers.

Commercial: Some possibility that the Flying Boxcar will be adapted for commercial air-cargo use.

Personal Plane: A limited number of Fairchild's new four-place personal plane may be produced this year. If they are, these ships will be manufactured solely for service evaluation in anticipation of a market late in '48 or early 1949. In the meantime extensive flight tests will be run off, and Fairchild's dealer and distributor organizations will be strengthened.

From the all-important financial standpoint, Fairchild's position is one termed "highly satisfactory." It was one of the few

CESSNA'S newest plane to come off production lines is the four-place Model 170



BONANZA is available as a "Flying Ambulance," with ample room for patient, nurse

aircraft companies that wound up with a net profit of over a million and a half in '46, and its net earnings for '47 bid well to exceed that. Fairchild has increased its working capital to \$12 million; and has a current backlog of business of about \$47 million. The company has enjoyed a steady growth over the years . . . and 1948 will see a continuation of that growth.

Funk Aircraft Company Coffeeville, Kansas

Military: None reported.

Commercial: None reported.

Personal Plane: The Funk B85C will con-

tinue in production in '48. No new models nor any design changes in the B85C are planned.

The Funk Aircraft Company anticipates a better year for all personal aircraft production and sales in '48, due in part to the junking of a number of war-surplus aircraft, thus increasing the market potential for new personal planes.

Grumman Aircraft Bethpage, N. Y.

Military: Grumman's only reciprocating engine fighter plane (for Navy), the F8F *Bearcat*, will remain in production at Grum-

(Continued on page 48)

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Aviation Forecast

(Continued from page 47)

man through this year. The new Navy fighter to see production this year is the jet F9F *Panther*. This ship completed much of its test work late in '47. Half of the production order calls for *Panthers* to be powered by Pratt & Whitney-built *Nenes*; the other half to be powered by the Allison jet unit. Tests on a new Navy amphibian, XJR2F *Albatross*, will take up much of this year, and any production plans for this ship will not be made known until mid-'48. This ship was designed for air-sea rescue work. Another new Navy jet will be prototyped and announced sometime this year, but any production schedule on it probably will not come until early '49. In addition to an extensive experimental program in aircraft for the Navy, Grumman has a research project in operation (guided missiles).

Commercial: The *Mallard* and the *Widgeon* come under this "Commercial" classification. Both of these amphibians will be in production in '48. The *Widgeon*, however, will see the end of the assembly line along about spring. The *Mallard* will be produced throughout this year.

Grumman's outlook for '48 continues good. According to early estimate, the company's production will be about the same as '47's, with a possibility of its being upped if the right action comes out of Washington.

Lockheed Aircraft Burbank, Calif.

Military: Lockheed will complete its P-80 contract for the Air Force sometime in the fall of this year. Navy contracts for the P2V *Neptune*, Navy search-patrol plane, run through '48 and well into '49. Also for the Navy is Lockheed's work on the *Constitution*. Two of these will be built and delivered this year. No prototypes are currently planned for production. However, more than one military prototype may advance to the "announced" flight-test stage in '48.

Commercial: Some *Constellation* production is anticipated this year even though the finish of the original order (for 122 Connies) was scheduled for the end of '47. Lockheed's so-called "regional transport," the *Saturn*, has little chance of getting into production this year.

As with all companies doing business with the AF and Navy, the possibilities for this year are good if Congress takes the action called necessary by President's Air Policy Commission.

Luscombe Airplane Corp. Dallas, Texas

Military: None reported, but manufacturing facilities are readily convertible.

Commercial: None reported.

Personal Planes: Four models of Luscombe's all-metal two-place planes will remain in production this year. These are the 65-hp *Silvaire Standard* and *Silvaire Special* (\$2,495 and \$2,695), and the 85-hp 8-E *Silvaire* and *Silvaire Deluxe* (\$2,995 and \$3,495). Design changes and improvements will be made from time to time throughout the year rather than all at one particular time. These changes will be announced when they occur. A new plane, the four-place all-metal *Silvaire Sedan*, will go into production early in '48. Powered by 165-hp engine, the new *Silvaire Sedan*



LOCKHEED will deliver two *Constitutions* to Navy in '48. No production plans as yet

is priced at \$6,995, f.a.f.

Luscombe does not expect the '48 production of personal aircraft to be as great as that of '47. However, Luscombe does anticipate a greater preference by buyers for all-metal construction. This could mean a better sale for Luscombe in '48. At the time of writing, Luscombe was producing and selling an average of five *Silvaires* a day.

Glenn L. Martin Company Baltimore, Md.

Military: Production plans for Martin for 1948 will find the continuation of the PBM-5A *Mariner* (20 have been ordered by Navy, with an increase in the order expected in the future), the Martin AM-1 *Mauler*, dive and torpedo bomber, and the P4M *Mercator*, long-range, high-speed patrol plane, all for the Navy. Several different types of planes and/or guided missiles will reach prototype stage in '48, but these are considered classified. One of the experimental planes to be in prototype soon will be a new flying boat (jet?). The jet XB-48 work is still under experimental contract. Can change to production contract at any time. The Navy *Nep-tune*, high-altitude rocket, will be put into production as part of Martin's guided missile program.

Commercial: Plans for production of the Martin 3-0-3 have been cancelled, thus no

new commercial ships will go into production at Martin. The 2-0-2 will continue in production, with deliveries to be made to Northwest Airlines, to Linea Aerea Nacional, Chile, and Linea Aeropostal Venezolana, Venezuela.

Personal Plane: None reported.

McDonnell Aircraft Corp. St. Louis, Mo.

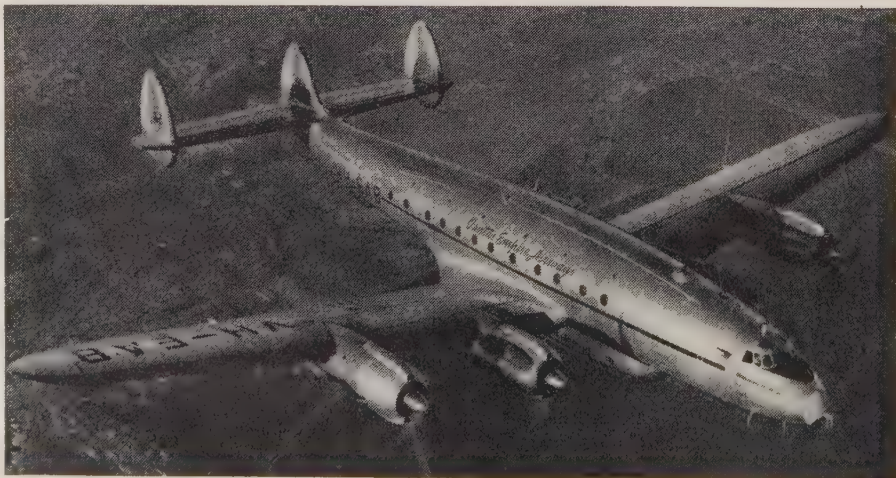
Military: Production order for the FH-1 *Phantom* will be completed in '48, and a production schedule for the F2H-1 *Banshee* will be started early this year. McDonnell's experimental ram-jet helicopter will undergo further testing and development this year. Other military developments are restricted at this time, but new prototypes undoubtedly will be forthcoming from time to time during '48. McDonnell has an extensive research and development program in operation for both the Navy and the AF.

North American Aviation Los Angeles, Calif.

Military: North American Aviation has extensive contracts with both the Air Force and the Navy for plane production in '48. The P-82 *Twin Mustang*, the B-45 four-jet bomber for the AF, and the FJ-1 single-jet carrier fighter for the Navy will continue coming off the line. The P-86 single-jet

(Continued on page 51)

LIMITED production of the Lockheed *Constellation* is anticipated through most of '48



Easy Does It

(Continued from page 44)

4 o'clock by pushing the *Bonanza*. But, when you have means of shortening distances to a fragment, why hurry?

Why not land at Idaho Falls just to stretch and look over a couple of extra special "dusters?" An additional attraction is the good coffee served at the Idaho Falls airport cafe, so an hour was spent here.

The dusters are Boeing PT-17 primary trainers that have been equipped with P & W 450-hp engines from the BT-13 trainers.

Fearless Farris Show

After a spot of the coffee, Horace Mitchell, chief pilot for Fearless Farris Pest Control Inc., took one of the souped-up Boeing biplanes out for a shake-down.

Brother, what that *Wasp* engine does for that primary trainer! It's no wonder they don't hesitate to carry 900 pounds of DDT out of fields in Idaho only a quarter of a mile long. And although one of the ships had been flown through a high-tension line—5 wires, two carrying 44,000 volts each and the other three each carrying 11,000 volts—there was little visible damage and the pilot had escaped unhurt.

It was 5 p.m. Sunday and the sun still high over in the west. Chuck and his missus had never been to the Call Aircraft Company factories at Afton, Wyoming, so we loafed over there for an hour or two. With a *Bonanza* the 100 miles by road up the Snake River canyon were telescoped to 35 minutes of flying time straight over the mountains and south of Caribou.

We came into the 6,200-foot (high) field at Afton at 5:35 p.m. In Star Valley there are three things to do on Sunday afternoon. 1. Take it easy. 2. Use up an hour or so inspecting the new products of this amazing small town industry that produces such diverse things as motor scooters to carry in airplanes; snow planes to cover unlimited miles of snow 4 to 10 feet deep; detachable skis for aircraft that fit over the landing gear, buckling on the wheels like overshoes; one of the best performing high-altitude airplanes in America; truck bodies; truck radiator grills; steel frame snowshoes and scooter side cars—just to mention a few stock items and not trespass the experimental mazes. And, 3. Drive to a Star Valley Swiss Cheese Factory where you can buy a few pounds of the best cheese being made anywhere—a product that cannot be bought anywhere else, because the production is all contracted for by big operators who process it and ruin the natural flavor, despite their commercial broadcast claims to the contrary.

Nevertheless, Star Valley Swiss in its natural habitat is a mighty good dish when taken on a quiet Sunday afternoon with a few crisp soda crackers and a spot of cold beer—name your own brand.

It was about 7 p.m. by the time this point was reached and the calm cool evening air was soft and smooth as velvet.

The *Bonanza* got out of the 6,200-foot field in still air with a run of about 1,500 feet and lifted easily. Of course when you have a new airplane being shown at a private field for the first time, and when there is no local traffic, you fly by to show your hosts how fast it will go lined out with the nose down. This procedure is not to be

confused with buzzing, which is showing off. At 200 mph across the ramp, the *Bonanza* has a nice steep angle for climbing up to 1,200 feet before it approaches stalling speed, in a maneuver not to be confused with zooming up after a buzz job.

Fifty-five minutes later, just after sundown, the *Bonanza* rolled its wheels on the Salt Lake airport and the weekend in Yellowstone was over. Total flying time on the *Bonanza* was 4 hours and 30 minutes. Gas consumption about 45 gallons. Average speed was 168 mph. But to really evaluate it, you have to sum up the leisure time involved.

The Saturday and Sunday weekend contained 48 hours—43½ hours were available on the vacation spot.

By adding an hour to the *Bonanza* they could have made the trip to Butte, Montana or to a northern Wyoming dude ranch far east of Yellowstone Park.

By going south the stay could have been made at Grand Canyon; or Monument Valley; or Las Vegas; or Reno, if you flew further west.

Even with the Cessna a man and wife and couple of kids, if they were moderately well fixed, could weekend at an amazing choice of beautifully scenic places within three hours of the Salt Lake valley.

Perhaps the advantages of air travel were driven most forcefully home by sight of numerous fine, large mountain cabins in the Island Park country that are opened only a few weeks out of the whole year for short vacations by the wealthy Utah millionaires who own them. They are less than 30 minutes from the Forest Service field at Big Springs . . . and less than 2 hours by *Bonanza* from Salt Lake or Ogden.

A wealthy man could leave his office at the ordinary time Friday evening and land at his mountain cabin before dusk, even having time to catch a few trout for supper.

After a two-day rest he could get up at 6:30 or 7 Monday morning and be at his office in Ogden or Salt Lake in time for work . . . except for . . . and there you have it . . . except for nothing but the fact that most of us haven't learned yet how to use airplanes for leisure.

By way of epilogue, we might consider weather for a closing point.

The subject is bound to be brought up by the veteran pilots who soloed *Jennies* and still have the OX-5 jitters. Engine failure was once a major problem in cross-country flying and between its hazards and dubious weather problems, there was once a lot of adventure involved in flying into and out of the Island Park country.

But a *Bonanza* will get around a lot of squall weather and nearly anyone can use enough judgment to cancel out if everything starts going zero-zero, which seldom happens in the summer time. The storms are squalls and when 170 mph is available a person can wait one out and still get back home without too much delay.

Not many storms can blow up without warning in less than 90 minutes and with a fast modern airplane you should be able to beat anything back home that might come along to mar a weekend trip. If a person got held up one day—then what? Relax, Pal, relax! It's not going to hurt you. Airplanes have a way, in the long run, of helping you slow down and still keep up, if you'll only take it easy and let them.

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DOUGLAS SKYROCKET



THE second Douglas ship, designed to operate in transonic speed range, is the D-588-2, *Skyrocket*. Main difference between *Skystreak* and this ship is in the wing. *Skystreak* uses straight wing, while the *Skyrocket* employs swept-back wing and tail. In addition to *Skyrocket's* J-34 jet unit, it employs rocket motors that are intended for use only in high-speed tests and at an altitude somewhere above 25,000 feet.

Faster Than Sound

(Continued from page 21)

powerful rocket engine designed and manufactured by Reaction Motors, Inc. This consists of four units, burning alcohol and liquid oxygen, each of which produces a static thrust of 1,500 pounds, or a total thrust output of 6,000 pounds. Power output is controlled by selection of the number of cylinders to be fired at a time, so that the pilot has a choice of using 1,500, 3,000, 4,500 or full 6,000 pounds of thrust. There are two types of forced fuel feed for the rocket engine, a pressurized system and a turbo pump. For the first model of the XS-1 the power installation used the pressurized system because the engine employing the superior turbo pump system was not ready in time. Difference in performance is quite marked. The unit with the pressurized system for forcing the fuel into the burner chambers can operate for only 2.5 minutes at full 6,000 pound thrust. This provides the XS-1 with an estimated top speed of 1,000 mph at 60,000 feet and a rate of climb of 28,000 fpm. (According to rumor, the XS-1 already has hit a speed considerably above 700 mph!) With the specially designed turbo pump, however, duration will be 4.2 minutes at full thrust, top speed 1,700 mph at 80,000 feet (for which the XS-1 was designed), and a rate of climb of 45,000 fpm, which is about

eight and a half miles per minute! (The best-climbing German job at the end of the war was the Bp-20 *Natter* (*Viper*) which with rocket assisted take-off reached 30,000 feet in one minute. They were working on a rocket plane with sweptback wings estimated to develop a speed of 1,700 mph and reach an altitude of 100,000 feet).

A series of non-power drop flights from a B-29 over Pinecastle Air Base, near Orlando, Florida, was begun in February of 1946 by the late Jack Woolams, former chief test pilot at Bell, killed when a souped-up *Airacobra* crashed into Lake Ontario. Flight characteristics of the XS-1 proved eminently satisfactory. In order to conserve fuel, the powered flights started at 30,000 feet or so (carried to that height by a specially modified B-29), with gradually increasing speeds to see just what the plane would do under all conditions. Bell's contract calls for certain minimum performance requirements as to stress, controllability, etc., at various speeds and altitudes. Once these initial performance guarantees have been met, the AF, Bell Aircraft and the NACA, who have cooperated on the project since its inception, will continue further test work, results of which will appear in future supersonic aircraft. These include the Bell XS-2, similar to the XS-1 but made of stainless steel and with sweptback wings, the Douglas XS-3 and the Northrop diamond-wing tailless XS-4. Several others are in the works.



Rancher-Flyer

(Continued from page 35)

Bechard realized how much easier it would be to keep track of his own 170,000-acre ranch if he could zip over it once in awhile in a lightplane. Six months later Jules Bechard got his pilot's license and bought a new Cessna 120.

He built his own airport very simply. He plowed, planted and then rolled a runway-sized patch of crested wheat. Very soon he had a tough turf field that was easy to keep up and was usable in all weather. Bechard then built himself a hangar from the customary scraps of lumber and material that are always found on ranches. As far as plane maintenance is concerned, it's no problem to Bechard. Like almost all ranchers, he is handy with tools and machinery, and keeps a close watch on the plane to insure its being in perfect condition.

It didn't take more than a few hours of flying to prove to Bechard that he had made a wise investment. Getting the children to and from school is now a pleasure, no matter the weather, and what is perhaps of even greater importance is the fact that it takes so little time to fly to school and back that the whole family has more time for chores . . . and there's still time for play and homework for the girls, too.

Last year the Bechards didn't miss a day of flying. Even when the weather was bad, the overcast stayed high enough to permit Bechard to follow the creek down to the school without hazard or navigational difficulties. Jules has had only one forced landing, from a clogged gas line, to mar his record. The Badlands are by no means a made-to-order landing field, but Bechard escaped without harm, nevertheless, and had his plane repaired and back in service in a short time.

The Cessna became an integral part of the Bechard farm routine just a short time after it was delivered, and it is still one of the most useful pieces of farm equipment. In the spring, fences are checked, and wild horses hazed into corrals or away from pasture reserved for his purebred stock—by plane. A close check on his wheat by frequent overseeing trips—by plane. Costly breakdowns in harvest or planting time are avoided, by saving time with the plane. When something is needed, from a tractor part to an aspirin, the Cessna is ready to slip easily and quickly off to town to get it. But the Bechards have lots of fun with the plane, too. It takes the family picnicking and fishing in the high ranges of the Rockies to the west of them, and gets them home again and ready for chores—all in the same day. When you consider the fact that darned few farmers and perhaps even fewer ranchers can afford the time away from chores during the good weather seasons, you can understand why the Cessna is a popular addition to the family in the eyes of the two daughters, particularly when time away from chores means a picnic or an air trip to a distant city.

Planes require a lot of care, Bechard agrees, but it is worse without them, especially on a lone ranch in the Badlands.

"To a rancher today, the plane is like a woman," Rancher Bechard happily intones. "It's hard to live with'er, but—dangit—you can't live without'er either!" T. A.



Aviation Forecast

(Continued from page 48)

fighter which features the swept-back wing and tail assembly will go into production sometime in '48. It made its first flight in September, 1947.

NA's plane production in 1948 is expected to be greater than that for '47. This year will also find North American continuing its extensive research and development program for the Air Force and the Navy. Details of this work are classified as confidential. Having always been a competitive leader in the field of aviation, North American undoubtedly will announce new and important developments in the field of military aircraft in 1948.

Commercial: None reported.

Personal Plane: None reported.

Northrop Aircraft, Inc.

Hawthorne, Calif.

Military: Northrop's big prospects for this year are the all-jet Flying Wing and the *Pioneer*, with another jet Flying Wing in the immediate offing. In addition to these aircraft, Northrop has an extensive guided missile program as well as several important (and classified) military aircraft projects, prototypes of which will be coming along sometime this year.

Commercial: Developed entirely by Northrop (and without benefit of financial aid from Government sources), the *Pioneer* looms as the bright spot on the cargo airliner horizon. Possessing exceptional performance, the three-engined *Pioneer* is an airplane that fills a gap in the catalog of modern aircraft. While nothing definite in the way of a production plan has been established for this ship, the chances are extremely good that it will come off assembly lines this year.

Personal Plane: None reported.

Piper Aircraft Corp.

Lock Haven, Penna.

Military: None reported

Commercial: None reported

Personal Plane: Piper will continue production on the PA-11, Piper *Cub Special*, and the PA-12, the *Super Cruiser*. Price for the *Cub Special* is expected to be maintained at \$2,495; while the PA-12 will be price-tagged at \$3,495. There is still nothing definite on the production possibilities of the all-metal four-placer that Piper has designed and built

a prototype or two. Consensus of opinion (not Piper's) is that if this four-placer can get into production this year it will prove to be one of the most popular plane-buys. Relative to other new models, Piper has a few new developments, but declines to specifically state what these developments are. Piper considers the outlook for personal aircraft use to be very good in '48, but is not too encouraged as far as the industry itself is concerned.

Republic Aircraft Corp.

Farmingdale, N. Y.

Military: This year's production will be centered in the volume output of P-84 *Thunderjets* for the Air Force. Delivery of 83 *Thunderjets* to the 14th Fighter Group were completed in January, and delivery of 83 to the 20th Fighter Group will be completed during February. By the end of this year at least three Air Force fighter groups will be operationally equipped with P-84's. Total contract calls for building 550 *Thunderjets*, involving a total cost of about \$80,000,000. P-48's are now being produced at a little better than one plane per day. Two long-range, four-engined XF-12 photo reconnaissance planes will be delivered for AF acceptance early this year. The possibilities are good that the F-12 will see production. Much, however, depends upon the action taken as a result of the President's Air Policy Commission report, and upon the AF's acceptance after flight testing.

In addition to a large (and restricted) guided missile project, Republic has an experimental jet, XP-91, under wraps. Possibilities are excellent that this ship will be in prototype later this year.

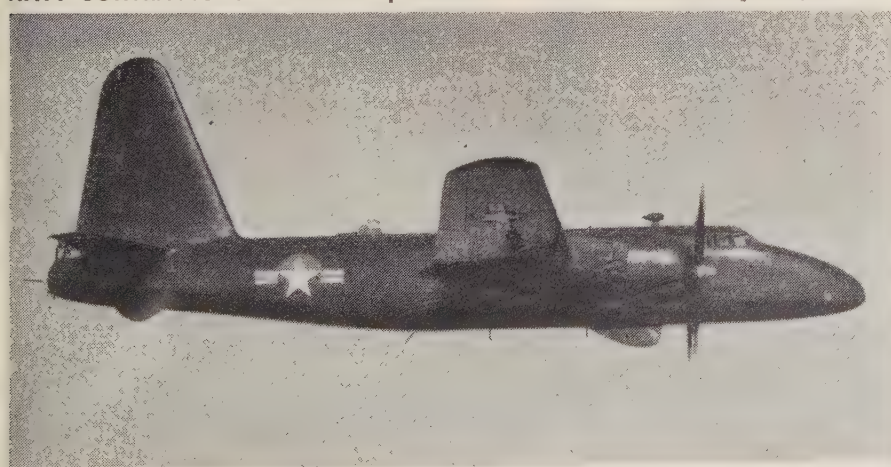
Commercial: Nothing reported, although it has been said that a commercial version of the F-12 is a likely possibility if a contract is awarded Republic for its production as a military ship. This is strictly here-say, however, and should a commercial version of the F-12 be developed, it probably could not get into production this year.

Personal Plane: At the present time it looks as though a deal for the complete sale of the *Seabee* will be accomplished. When this is put into effect (much the same way as the *Navion* went to Ryan from North American), Republic will cease making spare parts, etc. Until this deal is an accomplished fact, however, Republic will continue to maintain production on spare parts for the amphibian.

Republic shares the opinion of other manu-

(Continued on page 60)

NAVY CONTRACTS for Lockheed's production of P2V will run through '48, into '49



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More Miles Per Gallon

(Continued from page 29)

leaning, however, will cause a loss of RPM. The point at which this drop occurs is the lean best power setting.

For best economy move the mixture control lever toward lean until there is a 3 per cent drop in RPM from the best power setting. Lean still further for a 10 RPM drop and then enrich to recover the 10 RPM. The latter is a precaution to prevent vibration from causing the lever to creep towards an excessively lean position. Remember, when leaning the mixture it is imperative that you observe cylinder-head temperatures.

The use of carburetor heat when the mixture is set for best economy should be avoided. The resultant increase in the fuel-air mixture's temperature may be enough to cause detonation. If icing conditions are prevailing the mixture should be enriched to compensate for the use of carburetor heat. Heating the mixture also will cause a loss of volumetric efficiency which means less power from the fuel you are using.

Although the fuel-air ratio is a matter of relative weights, the conventional carburetor meters fuel by measuring the volume of air that passes through it. With an increase in altitude, the measured volume of air will weigh less than it did at sea level due to the decreased density. This causes the mixture to become increasingly rich as the plane gains altitude. Obviously, to maintain any semblance of economy the mixture must

be leaned if you intend to cruise at higher altitudes. The effect of altitude on range will be discussed later. Conversely, the mixture will have to be enriched when descending from altitude. One of the most frequent causes of dangerously lean mixtures is the failure to enrich when descending from high altitudes!

On planes equipped with fuel injection or automatic mixture control no manual leaning for altitude changes is needed.

Power Settings

This discussion of power settings to be used for economical cruising applies primarily to those planes that are equipped with controllable-pitch propellers.

For best economy the engine should be operated at the highest manifold pressure permissible with the minimum RPM to maintain the desired airspeed. An explanation of why this is true will dispel any doubts as to the practicability of this rule. High manifold pressure means operating at or near the full throttle setting. With the throttle valve in this position there is little of the friction and pressure loss caused by the restriction in the carburetor venturi at lower throttle settings. The high manifold pressure produces better fuel burning characteristics in addition to squeezing more power from the fuel because of the high pressure itself.

Operating at a low RPM greatly reduces the friction losses incurred at high engine speeds. Volumetric efficiency is reduced considerably by the effect of the fuel-air

mixture's inertia when the engine is operated at a high RPM. Since the exhaust valve remains open for a shorter period, all of the burned gasses will not have time to leave the combustion chamber. Some of these burned gases will remain to dilute the fresh incoming charge. Similarly, there will be less charge entering the cylinder because of the shorter period that the intake valve remains open.

The poorer burning characteristics at low RPM are offset by the better combustion obtained at a high manifold pressure.

Speed

Airspeed is an important consideration in the struggle to reduce fuel consumption and it is even more important in that it can be controlled by the pilot in even the simplest of lightplanes. The so-called "cruising" speeds specified by the plane manufacturers are actually very inefficient when maximum range is desired. To illustrate the amount of fuel that can be saved by selecting the correct airspeed these figures are quoted from the Pilot's Handbook for the North American Texan (Army AT-6, or Navy SNJ):

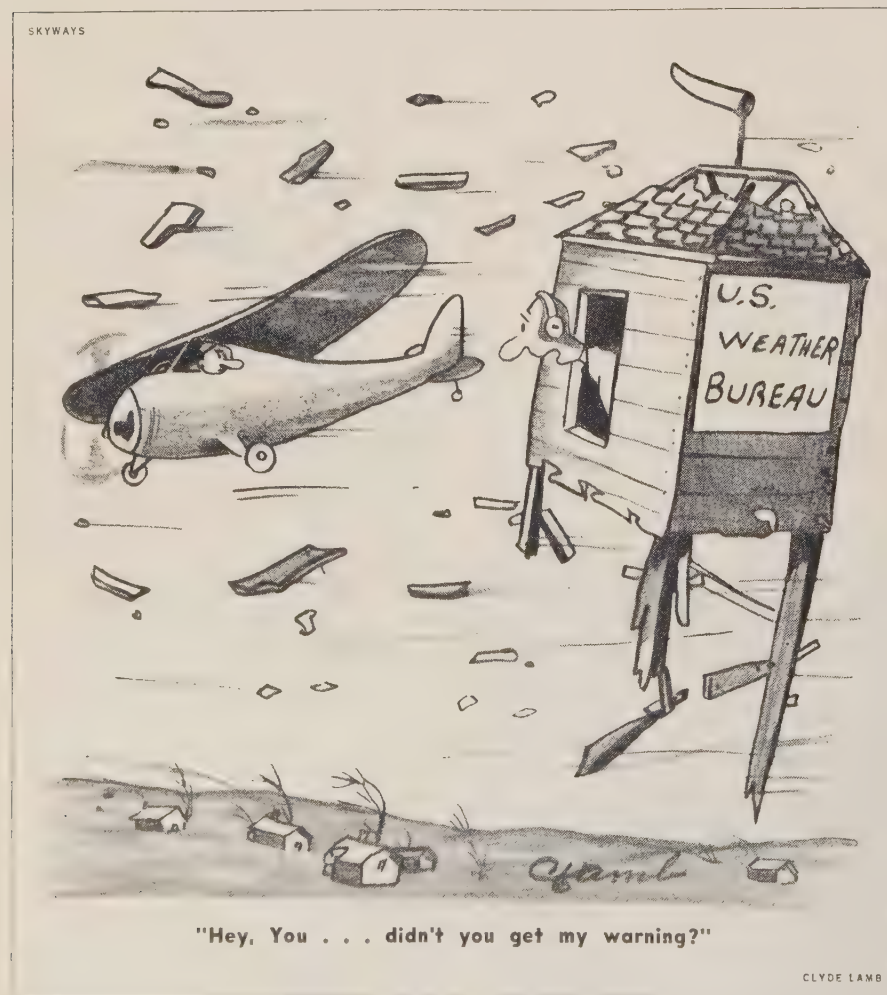
Speed	Range	Fuel Consumption
180 MPH	490 Miles	32 GPH
145 MPH	700 Miles	18 GPH
125 MPH	800 Miles	14 GPH

Using the above figures, it can be seen that the pilot of a *Texan* can save 25 gallons of fuel on a 400-mile trip by cruising at 125 mph instead of 180 mph. This is worth considering!

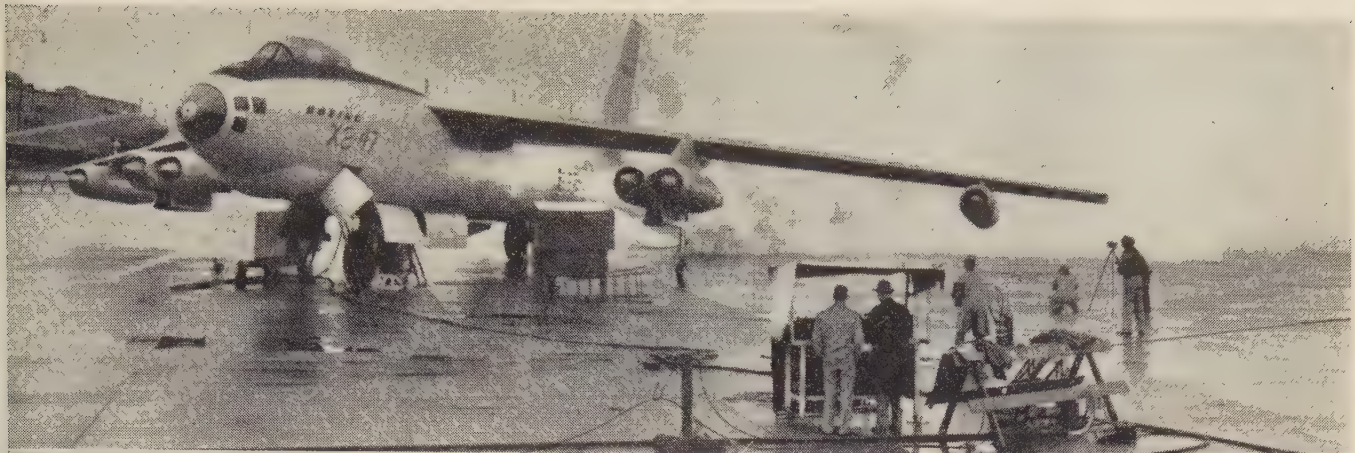
For maximum range and economy the best speed to use is from 5 to 10 per cent above the normal gliding speed. Normal gliding speed is the speed you use to get the best gliding angle in a power-off descent. It is the plane's most efficient speed. With power on the additional 5 to 10 per cent increase in speed is permitted because the propeller drag encountered in a power-off glide is eliminated. Because of the rapid increase in drag, the power required for an increase in speed varies as the cube of the speed. That is, if it takes 50 horsepower to fly the plane at 60 mph, increasing the speed to 90 mph—an increase of only 30 mph—will take 169 horsepower! The wastefulness of flying at very much above the normal gliding speed is apparent. Decreasing the speed below that recommended above is almost as foolish. There is a point where any further decrease in airspeed actually increases the power needed to stay aloft. If you do not know the best gliding speed of your plane, you can obtain it from the manufacturer or by doing a little experimenting.

In conjunction with maintaining the correct airspeed it is important to reduce drag as much as possible. Keep the plane aerodynamically clean by closing all windows, access doors or inspection holes. Any obstructions or accumulations of dirt on the plane's exterior will consume their share of your fuel supply. Washing the plane before a cross-country hop may not seem worth the trouble, but it is the combined effect of all these fuel-saving practices that will increase your range and ease your fuel expenditures.

(Continued on page 54)



CLYDE LAMB

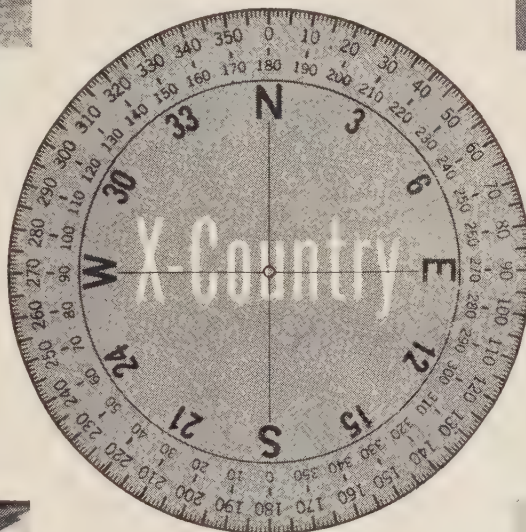


BRITISH lightweight single-seater Chilton, powered by a tiny 40-hp. engine, recently set a new international closed-circuit speed record (in this power class) at Kent. Average speed for course was 123.7 mph.

MORTEN Model VI, an all-wing glider, was "captured" by the U. S. Armed Forces in Germany, and is now being repaired and re-assembled by Northrop students so that its aerodynamic characteristics can be studied.



BOEING XB-47, six-jet swept-back wing bomber, is shown here testing its Jet-Assisted Take-Off (JATO) rockets. These rockets are capable of producing 18,000 pounds of thrust for auxiliary or emergency power.

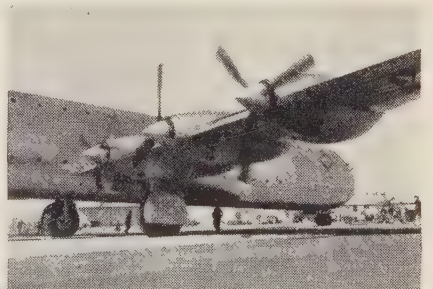


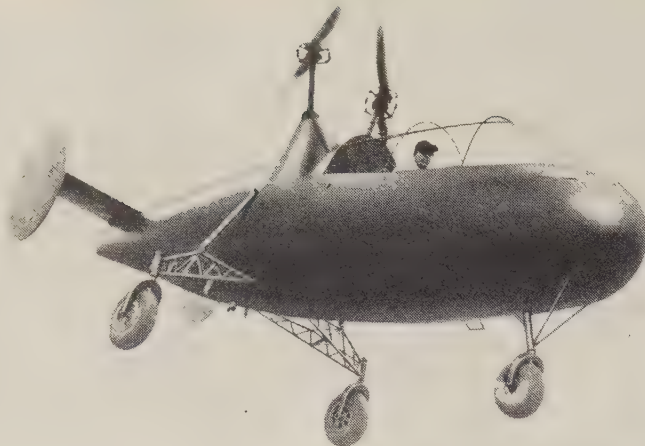
TUDOR VIII, a British designed and built air transport, is one of U.K.'s newest and largest. The ship seats 60 passengers, and is powered by four Bristol *Hercules* engines. *Tudor II* used four Rolls-Royce *Merlins*.



HUGHES' Flying Boat finally made its first flight. With Howard Hughes at the controls, the giant 200-ton flying boat was lifted off the water during a taxi testing session. The big ship is powered by eight engines.

CONVAIR'S XC-99's size is well pictured here in this shot of three of the giant plane's pusher-type engines. The 132-ton airplane will carry 600 soldiers or 50 tons of cargo. Each engine produces 3,000 horsepower.

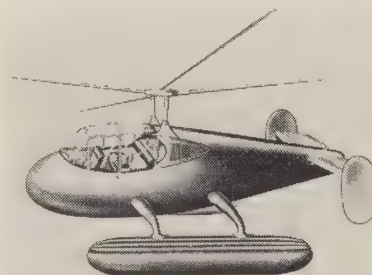




KAMAN helicopter's rotor, control system brought company a Navy contract

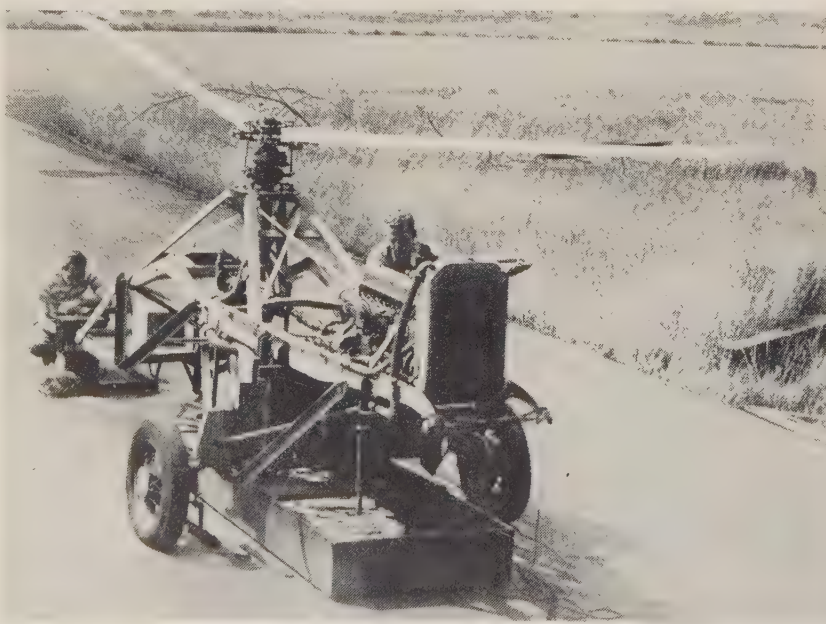
New Kaman 'Copter 125

YOUTHFUL Charles H. Kaman, of Kaman Aircraft, Windsor Locks, Conn., test flew his first attempt at helicopter building just a year ago. Today, his company is at work, under Navy contract, doing more research on the rotor and control system that was developed and flown in that first Kaman 'copter. The Model K-125-A, developed by Kaman Aircraft, is one of the first rotory wing aircraft built that can be flown hands off, according to a rotory wing authority from the Mass. Institute of Technology in Boston. It is the intermeshing rotors and the refined tail surfaces that create this exceptional stability under all flight conditions. Another feature of the Model K-125-A is its lifting capacity, reported to be 20 pounds per shaft horsepower. Flight tests of the 125 established a payload of 600 pounds using less than 125 horsepower and a forward speed of about 100 mph. Simplified design and aerodynamic efficiency of K-125 are said to result in low initial maintenance, and operating costs.



ARTIST'S drawing shows details of Kaman's amphib model of the K-125-S

NON-FLYING full-scale test rig was used by engineers to study 'copter's rotors



More Miles Per Gallon

(Continued from page 52)

Altitude and Wind Effects

On planes that have a fuel tank of 4 hours capacity or more the increased range and fuel economy to be had by cruising at high altitudes should be seriously considered. What you gain in altitude flying lies in the difference between Indicated airspeed and your True airspeed at that altitude. For each 1,000 feet of altitude there is approximately a 2 per cent increase in TAS. At 10,000 feet a plane indicating 80 mph would actually be travelling at 96 mph. A little more power is needed to maintain a given IAS at altitude but this is more than compensated for by the increased TAS. To get the most benefit out of high-altitude flying, use a lower power setting than you would normally use near sea level. You may not feel comfortable mushing along with a low reading on your airspeed indicator but after you once try it and experience the increased range that results, no one will be able to talk you out of it.

Everything you gain by cruising at high altitudes may be lost if you are not just as miserly with your climb and descent. Both should be made at the speed for maximum range discussed in the preceding section. It is a strong temptation to let the speed build up on the descent; a little restraint here is well worth while.

Here again the importance of maintaining the correct mixture as you climb must be stressed. If you cannot lean your mixture and do not have a fuel injection system, stay low!

The choice of altitude is dependent upon the wind conditions. If meteorological reports are available, it is easy to choose the altitude that has the most favorable winds. Where you have only your own judgment to guide you, it is wiser to stay low when you suspect headwinds aloft. With a tail wind, the higher you climb the stronger it will get. With a plane of 5- or 6-hour range, 10,000 feet is the most practical altitude to use. A good rule to remember is that in the U. S. the prevailing winds above 10,000 feet are westerly 90 per cent of the time.

A further refinement on using the winds to stretch your fuel supply is known as pressure-pattern flying. Weather maps are essential for this method which takes advantage of the air circulation around high- and low-pressure areas to maintain as much of a tailwind as possible along most of the route. A pilot flying directly from A to B might have to make the trip without the assistance of any tailwinds and might even have to buck some headwinds. By deviating from his course, however, he might find those helpful tailwinds along most of his route. If properly planned the slight added distance to be covered on a deviated course will be doubly compensated for by the increased groundspeed. A knowledge of meteorology is helpful in planning a pressure pattern flight.

The principles outlined in this article, if conscientiously adhered to, will pay off in smaller fuel bills and increased range for your plane. They have all been used by the author who found them well worth the little effort it takes to apply them. It is hoped that they will be just as helpful to you in getting the most out of your fuel.



Jet Wing

(Continued from page 37)

eight-jet YB-49. Twelve additional 172-foot span airplanes, each weighing over 200,000 pounds at gross overload, are now building at Hawthorne, Calif.

Speeds up to 25 per cent greater than conventional aircraft of the same power, and weight and range more than 50 per cent greater than conventional types at the same or higher speeds have been demonstrated to be attainable in the near future.

Although it is the most impressive, the Flying Wing YB-49 is not the first airplane in which Northrop has "married" the all-wing design to jet propulsion. The XP-79 Flying Ram, a twin-jet fighter which used a prone position cockpit, was, as far as is known, the first jet all-wing airplane ever built in the world.



FLYING RAM, a twin-jet plane designated XP-79, is another Northrop Flying Wing

"I think the thing which surprised us all was the smoothness of that airplane," says Max Stanley, senior Northrop test pilot. The jet engines are vibrationless, and since the two banks of engines are broadside to the crew quarters, and some distance out in the wing, the YB-49 is amazingly quiet."

The quiet, vibrationless movement at first caused the crew members to doubt their instruments. It didn't seem possible that the giant ship could be knifing through the air at the rate indicated by the air-speed needles.

Spectators at Northrop Field on the plane's initial take-off were amazed by the rate at which the YB-49 went upstairs. It swept off the field in about 3,500 feet and put its nose up at an angle which looked as though it must surely stall. A few seconds later the pilot steepened the angle of climb still more and the spectators gasped.

The explanation, according to Stanley, was perfectly simple—the airplane just started to run away.

"I wasn't used to it yet, and when I realized we actually were going as fast as we were the logical thing seemed to be to climb at a steeper rate, until we could get our landing gear tucked away and our speed under control."

The airplane is so clean and fast that Stanley found it hard to slow it down for landing, until he found that the drag rudders on the wing tips work well as air brakes, when the pilot steps on both rudder pedals at once. That helps slow the airplane down.

Northrop crew members are now continuing the first phase of tests on the unconventional big jet, prior to turning it over to U. S. Air Force pilots for their proving work. Second of the jet Flying Wings will be delivered to Muroc soon.



Ditch The Din

(Continued from page 33)

comparable only to his love of engineering development, the Jersey inventor kept to the job of refining his project right on through the years. In May of 1940, the CAA approved the muffler for commercial use. Several installations were made immediately, and of this group of original users, many have been sending Bill Diehl some very gratifying reports. One in particular, Joe Rollins of Turner, Maine, reported that the muffler on his Luscombe 65, installed in 1940, never required as much as 10 cents or 10 minutes for maintenance up until the day he sold it in 1945. Nor did it ever steal an ounce of horsepower. In fact, Rollins noted an increase in revolutions *after* the muffler was installed. And so did all the others, including a North Bergen, New Jersey, physician who, after selling his ship, kept the muffler to install on his new plane.

It is little wonder that Bill feels proud of his job. And as airplanes roar overhead, leaving a path of interrupted conversation and rattling windowpanes in their wake, he looks confidently skyward; an assured smile creeps across his face, for he feels that his muffler is the answer to all this racket.

Nor is he alone in his opinion. Several eastern operators have seen it in action and are impressed; Mallard Air Service of Teterboro Air Terminal has ordered installations on some of the company's *Navions*; inquiries mount by the day, and now Bill finds himself in that utterly delightful but perplexing position of trying to keep up with his orders.

The muffler is simplicity itself. It has no working parts, weighs but 6 pounds, and requires no servicing. Built of stainless steel and mild steel metalized, the elements mean little to it. Mounted in the slip-stream, it offers practically no parasitic resistance due to its streamline design and the discharging of exhaust gases. But the big feature is, of course, its thoroughly unique performance. Much like Bill's experimental model of 1928, it not only performs the job of greatly silencing the exhaust, but it also increases the engine's performance. This is accomplished through special scavenging characteristics

incorporated into the general design which induce a suction in the exhaust manifold. Tachometer and anamometer tests show these gains clearly. And thus back-pressure is reduced to a negligible minimum, and the possibilities of excessive head temperatures are hardly greater than if no muffler were being used at all.

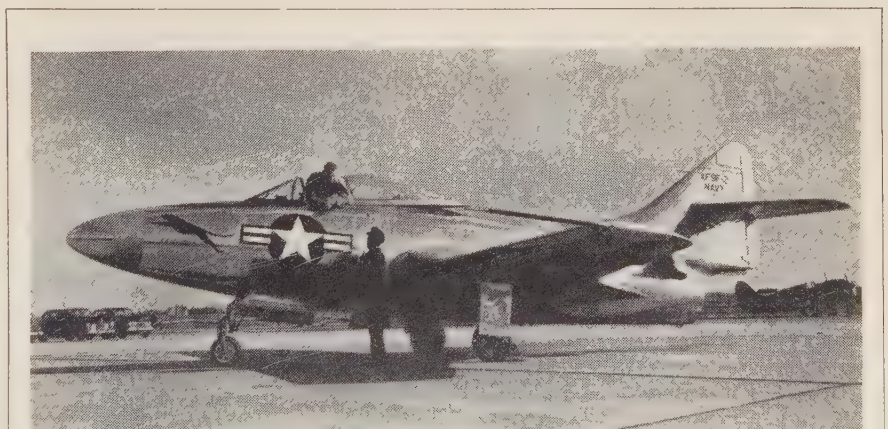
When operating on an engine of about 65 horsepower, and running at half throttle, there is no time when the hand cannot be held to the muffler without danger of a burn. Moreover, it offers no fire hazard to the aircraft—the entire thing being externally mounted. Nor are the passengers exposed to asphyxiation from monoxide gas as, unfortunately, happened in the case of another muffler some time ago.

But Bill doesn't try to boost his muffler by calling attention to the failures of others. He would rather that you see and hear it yourself.

That the engine is responsible for the bulk of airplane noise is an idea that has gained momentum only of late. To Bill it is an old theory. For since the days when he taught explorer Martin Johnson and his wife to fly, to him propeller noise was just something of a flash-in-the-pan, something that struck the ear only from certain angles, and then it always carried the motor noise along with it. To substantiate his theory, he points to the present-day propeller-less helicopter as it rotors along making just as much noise as any other geared aircraft of similar horsepower.

This New Jersey pilot-engineer, who flew with Clarence Chamberlin, Clyde Pangborn, Bill Stutz, Bert Acosta and Bernt Balchen; who flew test for Wright Aeronautical back in the days when tri-motored Fokkers and Fords were blazing the air-trails across the continent, is firmly convinced that the answer to the airplane noise problem lies in the control of exhaust noises. He is also convinced that the problem will sooner or later—most likely sooner—become a matter of legislation, and he calls attention to the ever growing number of attempts to close air-fields through court injunction.

"Voluntary effort now," says Bill Diehl, "may go far toward forestalling that day when we will be told 'you must'."



New Navy Panther

The Navy and Grumman have come up with another winner to add to the list of carrier-based fighters. This one is the jet F9F *Panther*. Powered by a Pratt & Whitney-built *Nene* turbo-jet, the *Panther* is reported to be in the "600-mph class"

Skyway To God's Lake

(Continued from page 39)

low was a maze of spruce, rock out-croppings and countless thousand of lakes, many not even named on our aerial survey maps. Near the rush-clad margins on some of the shallower waters we could see moose lumbering into the protection of the forest. Once we spotted a she-bear and two cubs in a clearing. But no sign of human habitation, not even a logging trail. Then, in the distance, appeared the big hydro-electric dam at Kanuchan near the head of God's Lake. Dormant now, it was once a bustling scene of activity generating power for the now-closed God's Lake gold mine on Elk Island.

Ahead lay the long finger of Elk Island, hard by the east mainland of the lake. We circled it once and looked down upon the roofs of a ghost village that once housed 300 gold miners. Now only a handful of Cree Indian trappers and a few white traders lived here.

"Coming in!" Shorty yelled back to us above the motor noise. "Won't be any hand out to meet you."

So it proved. Only Roy Bennett, forest patrolman and temporary caretaker of the closed mine, was on the dock to greet us. And Russ Campbell, trader and trapper. They explained the Indians were all away at the Hudson Bay Company post. It was annual treaty payment time and they were still celebrating on those five-dollar gratuities per head.

Roy announced the mining company had short-waved from Lac du Bonnet to authorize our use of one of the mine buildings as sleeping quarters and another as a cook shack. Also he had persuaded two Indians to guide for us and to supply us an outboard motor and two freighter canoes.

"But they won't be much help guiding," Roy confessed. "They never do any hook-and-line fishing up here. Only thing we use fish for is dog food."

Ted was incredulous. "You mean you feed fish to the dogs?" Roy explained that everyone at God's Lake has a dog team for winter travel over traplines. In summer the dogs have no work and are tied up. Still they must be fed.

"So we feed 'em fish we catch in nets," Roy went on. "Don't ever get any sport fishermen this far into the bush."

"You don't eat fish yourself?" Ted inquired, his brow still wrinkled in bewilderment.

"Don't go much for fish here," said Roy. "Most of us would rather have salt pork or bacon. Then, there's always moose meat."

We spent a sleepless first night, punctuated with the howling of half a hundred sled dogs tied to stakes to prevent disastrous dog fights. Next day we saw the strange spectacle of a huskie eating a 10-pound lake trout raw, bones and all, with very evident relish.

Shorty had already started back with the Bellanca after agreeing to pick us up 10 days hence. And now we were eager to start catching some of those 50-pounders we'd heard about. A brisk northwest wind sprang up, however, kicking the broad expanse of God's Lake into huge whitecaps. Our Indians advised against venturing out in canoes.

So, chafing at the inaction, we quickly assembled casting rods and tried our luck from a rocky promontory near camp. Armand forthwith tied into an 8-pound wall-eyed pike and my third cast produced a nice 12-pound lake trout. We both were using big spoons. Dr. Moe and Culbertson each snared a huge northern pike which they proudly hauled up on the rocks and stood staring at.

"Huh!" grunted a voice behind us. "White man's fish." It was one of our Crees who had sauntered over to watch the novel spectacle of a man actually catching fish on a hook and line. Later we learned he had meant these beauties of the deep were fit only as dog food, just as Roy Bennett had explained.

It was dawn of the third day before the surface of God's Lake was calm enough to venture forth. Roy suggested we immediately take advantage of this by making the 12-mile run to God's River for some brook trout fishing. We borrowed a wide-beamed skiff from Casey Olson, trader on Elk Island, and loaded aboard a tent, sleeping bags and grub enough for a two-day stay on the river. Then, with two outboards kicking the skiff along and our two canoes in tow, we headed out for the river—and a new experience.

Two miles below the headwaters of the river it narrowed rapidly and its current gathered perceptible speed. From somewhere ahead came the menacing rumble of rapids and our guides, wise to river treachery, pulled for the east bank. Then we saw it—a sharp bend punctuated with the jagged rocks of a wild rapids. Water boiled down through the narrowed course, piling up in a series of four-foot white rollers at one point. It looked ugly.

We portaged around to the rocks at the lower end of the rapids, jointed up flyrods and soon had brown streamer flies swirling in some eddies that looked as fishy as any water we'd ever seen. So they proved to be.

"Got one!" Ted shouted on his third cast. "Get the camera, Doc! This'll be a new world record."

We all stopped fishing to watch. A flash of red belly told us Ted had a beautiful brook trout. And what a magnificent battle it waged! A dash for white water, fighting every inch of the way back, some pyrotechnics on the surface, short darts into leader-snapping rock crevices. And then he was in—a gorgeous fish that scaled just 8 pounds, 10 ounces.

But now an eddy across the stream caught my eye. Dr. Moe agreed to paddle over with me in one of the canoes. Ted insisted on riding along. So, with Ted amidship, John in the bow and myself in the square stern, we started out from the upper end of our portage, 200 yards above the rapids, so as to have a safety margin for crossing.

Quartering up against the current, we worked toward the center of the stream. Moments later I looked down at the gravel bottom and it suddenly dawned on me we were making no headway at all.

"Gotta double our stroke if we want to make it across," I shouted to John. We both gave a mighty heave on the paddles and worked into the fastest strip of the current. I looked down again. We actually were being carried stern first down stream. An appalling realization of our predicament hit us all at the same time.

"Pull for shore!" Ted yelled. "We can't make it across!"

Frantically we tried to head back, and that was our fatal mistake. The canoe swung around broadside to the current and then all power against it was useless. We were rushing along at express train speed toward that frightening maelstrom below—and out of all control.

"Pull!" Ted shrieked. "Pull!"



"First sir . . . let's try this on for size!"

RARIG

He might as well have bayed at the moon. There was nothing anyone could do to save us. The big, white rollers were startlingly close. Their curling crests seemed to reach out for us eagerly.

"This is it!" I remember thinking.

And then John Moe did a heroic thing. We were coming broadside at the rollers and surely would have been swamped. But, as a huge rock sped by, he leaped for it, kicking the bow at the same time so the canoe lined up longitudinally with the current. Later we credited this with saving our lives, though at the moment I hadn't even known he had jumped, so intent was I upon this moment of doom.

The square stern of our canoe hit the first roller with me clinging to both gunwales and helpless to prevent it. A great wall of white water boiled in over the stern and sides, then another and another. And still another.

Suddenly, as quickly as catastrophe had seized us, it was over. The water was quiet. We had been sucked into an eddy. I looked dazedly into a canoe half full of water. I saw a rock ledge and fastened onto it with the blade of my paddle. We were safe, and still alive.

Then only could I look around. Ted, soaked from head to foot, was on his knees still clinging to the gunwales. John was gone, totally disappeared as though he had been swallowed up by the maelstrom.

"He's drowned!" I said weakly.

For the first time I dared glance back at the rocks we had so miraculously escaped. Then I saw him. He was standing on a boulder in mid-stream and the water ran off him in rivulets. But he was safe.

Anyone who has been through a crisis knows how the sudden release of tension will bring on uncontrollable laughter. It came upon Ted and me now. The spectacle of John, so wet and forlorn on the rock, seemed excruciatingly funny. We both broke into gales of mirth.

It must have been 10 minutes before we could control ourselves enough to haul the canoe up on the rock ledge and empty it. Then we paddled into the eddy below John's rock and rescued him.

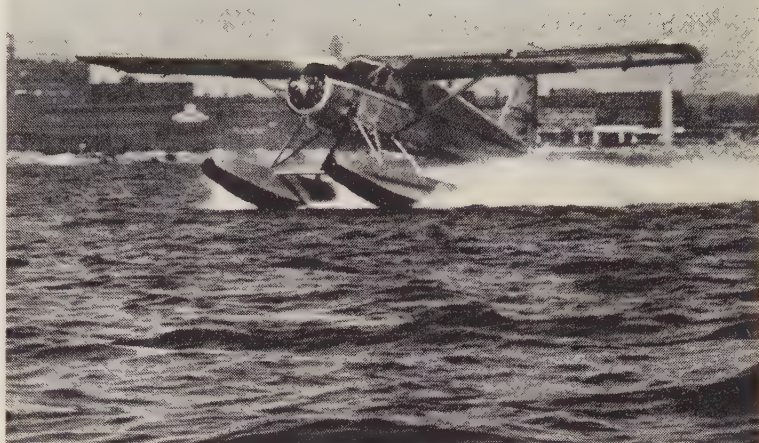
Fish, delicious pink-meated brook trout, graced our tin plates at supper that night. Next day we took several more, 5- to 10-pounders, which we drew and gilled for the trip back to the States. Our Crees broke camp and we headed upstream for God's Lake and Elk Island.

For four more days we fished lake trout, catching several up to 25 pounds. But somehow those mythical 50-pounders eluded us. We tried the deepest holes, 200 feet down, with big spoons trolled on copper lines. No giants lurked there. The surface water temperature was just over 50° and it dawned on me that the lake trout of God's don't need to seek the cooling depths, for nowhere in the lake does the water ever warm up enough to drive them down.

Thereafter we fished with the best of luck in 25 to 40 feet of water along rock ledges. But nothing like a 50-pound fish took our lures. We simply hadn't located the big ones.

On our last full day at this remote Canadian lake we elected to try the mouth of the Knife River for wall-eyes and northern pike or "jackfish" as the natives called

(Continued on page 59)

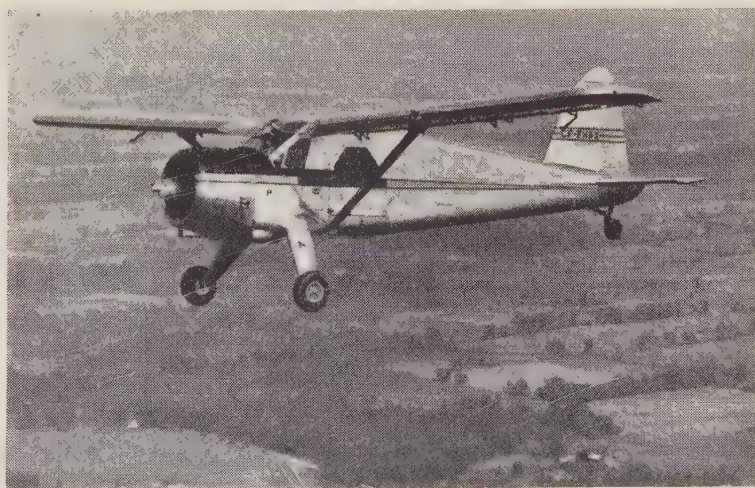


FLOAT-EQUIPPED Beaver has provisions for carrying a 16-foot canoe

De Havilland Beaver

BUSH pilots in the rough country of Canada welcomed De Havilland's announcement of the new *Beaver*, a five-place plane that can be used either for personal transport or as a cargo ship. Powered by Pratt & Whitney *Wasp Jr.* (450-hp) engine, the all-metal *Beaver* has a cruising speed of 146 mph at 5,000 feet, a range of 500 miles and a service ceiling of 18,000 feet. As a seaplane the *Beaver* cruises at 137.5 mph, has a service ceiling of 17,500 feet. Using the 500-mile range, the *Beaver* hauls a net payload of 1,067 pounds, or 937 pounds as a seaplane. The three rear seats of the ship are quickly removable and are designed to collapse as a flat pack for convenient storage aboard the plane. This way a pilot can fly four passengers on a trip out, and then, if necessary, carry a cargo payload back. The seaplane version is equipped with Edo floats, and special provisions have been made by DeH. for carrying a 16-foot canoe on one of the Edo floats.

DEHAVILLAND'S newest in personal plane field is the DHC-2 Beaver



Dilbert

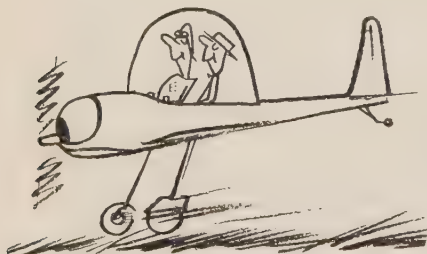
(Continued from page 40)



so many fledglings want to show how good they are before they are dry behind the ear-phones. Accident reports show that this mental aberration usually afflicts students with low solo time in one of two ways: 1) Either the boob can't resist doing a few fancy maneuvers while flying low over his



girl friend's cabaña, or 2) he persuades some gullible friend for the purpose of taking a joy hop. Occasionally such rides aren't even for free; then the passenger is a double sucker.



The same childish desire to show off, which leads a student into these situations, causes him to attempt maneuvers which are over his head. The results are about what you might expect. Case 2 accidents are especially sad because the student not only musses up his airplane and himself, but also the friend with the misplaced trust.

Quoting Civil Air Regs to such bird brains is a waste of breath. If you can catch one in the act, it presents a wonderful opportunity to show that crime does not

pay. The best results are obtained, however, by reaching them through their egos. Give wide publicity to accidents of this nature and convince them that any attempt at such things while they are students is more apt to make them look like asses than eagles.

Dilbert Was Here—While out joy-hopping the other day, Dilbert noticed that his engine was smoking badly. He immediately headed for home and got over the field with 2,000 feet of altitude. "Fine," you say. But wait till you hear the rest. A flight is never over until the plane is secured.

When Dilbert contacted the tower and requested permission to land, he was told he was number two on the list. His engine was still smoking, but since it appeared to function satisfactorily, he didn't feel that the delayed landing was worth arguing about. Shortly after he started a wide circuit of the field, his engine began to lose power. He said later that he didn't add throttle for fear of burning out his engine. He also admitted that he hadn't looked at his temperature or oil pressure after he arrived over the field.

The idiot never did take any emergency action, right down to the time he turned over in a rough field 100 yards short of the runway. The plane caught fire just as Dilbert crawled out from under. Believe it or not, he argued that the accident was due entirely to engine failure.

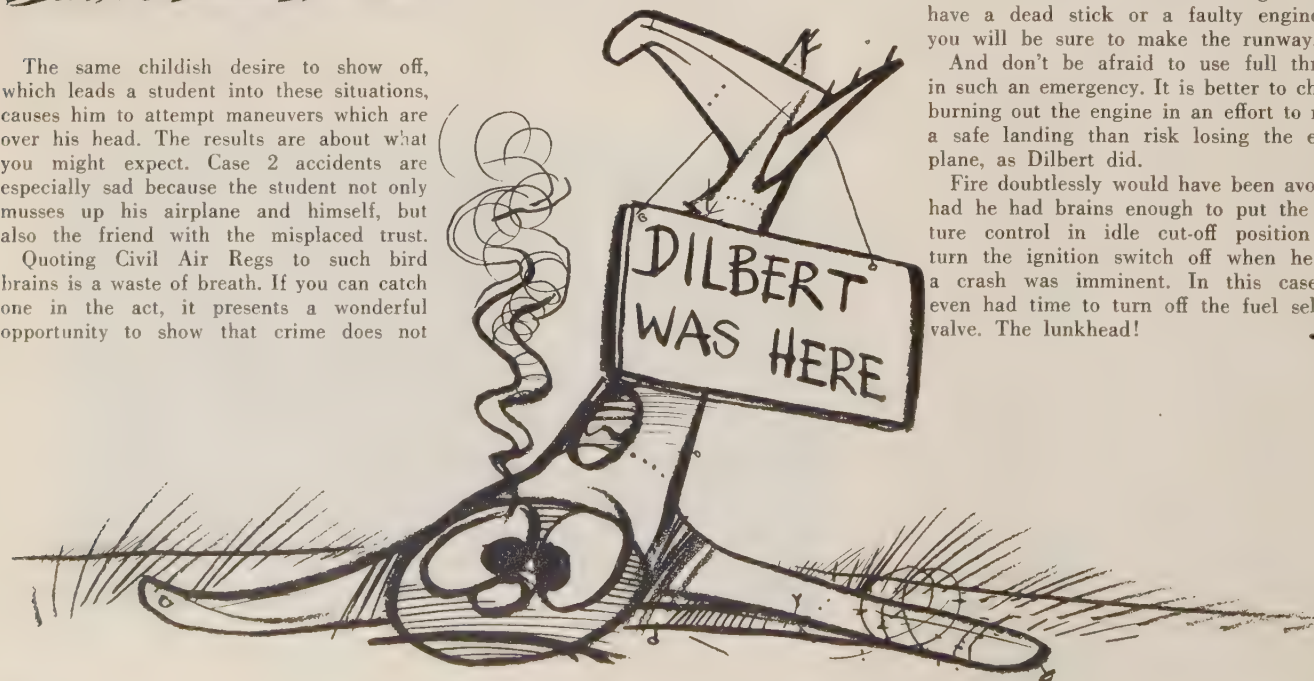
Let's analyze this accident and see if we can't salvage at least a few good pointers. Anybody can learn to handle an airplane, but it's how you handle it in an emergency that really counts.

To begin with, a badly smoking engine should indicate that you are in a situation pregnant with trouble; certainly when the engine starts losing power. Let the tower in on the bad news as soon as possible. They are there to help you and usually will be able to bring you in. In an emergency, a wheels-up, flaps-down landing can be made in a very small area, such as on the turf between runways, on taxiways, et cetera.

Under such conditions, keep as much altitude as possible, at least sufficient to reach the field from any position around it. Make your first approach perfect and remember to come in a little high if you have a dead stick or a faulty engine, so you will be sure to make the runway.

And don't be afraid to use full throttle in such an emergency. It is better to chance burning out the engine in an effort to make a safe landing than risk losing the entire plane, as Dilbert did.

Fire doubtlessly would have been avoided, had he had brains enough to put the mixture control in idle cut-off position and turn the ignition switch off when he saw a crash was imminent. In this case, he even had time to turn off the fuel selector valve. The lunkhead!



Skyway to God's Lake

(Continued from page 57)

them. But Ted would have none of it. "Armand and I have the address of a 50-pounder," he boasted. "We'll have him strung up for you when you get back."

The Knife River mouth was all Roy Bennett had said it would be. We took a dozen wall-eyes from 6 to 12 pounds and had the sport of our lives catching and releasing northern pike up to 22 pounds on flyrods.

Then, as the western sun touched the tips of the black spruce, we started back. But twilight lasts for two hours or more in this far north country, so we had plenty of time for the return journey. When we pulled up to the dock at 10 p.m. it was still light enough to read a newspaper. Ted and Armand were on the dock awaiting us.

"Well?" said Ted, inquiringly.

"Well, what?" Wally Halstead retorted. "Any fish?"

Fred Carlson held up four wall-eyes that averaged 10 pounds apiece. "Just a sample," he remarked.

"Huh!" came Ted's disdainful grunt. "Minnows! Just trout bait!"

"All right, smart guy!" Fred replied. "Where's your 50-pound lake trout?"

Ted waved grandiosely toward the side of the boathouse and our eyes popped. There, hanging by a clothesline, were four of the biggest lake trout we'd ever seen.

"Lost one bigger'n those," he remarked casually.

We demanded a weigh-in. The largest scaled 51 pounds even. The others were 49-6, 48-11, and 41-5. One hundred and ninety pounds of lake trout!

"Who'd you buy 'em off of?" Wally was insisting.

"Buy 'em, Hell . . . I caught 'em!"

"Look at those gill-net marks," Fred taunted. "Those fish didn't get caught on a hook and line. Some Indian netted 'em."

Ted was visibly reddening in anger. "Listen," he said, "those marks are where the fish were lying against the ribs in the bottom of the canoe. Gill nets! Bah!"

At that moment one of his fish gave a visible flip of its tail. Gill-netted fish don't come in alive. That silenced the argument.

Next day at noon we were all packed and ready on the dock for our plane when we heard its droning motor in the distance. It circled once, then set down far out in the bay of Elk Island. Taxiing in, the pilot artfully dodged submerged rocks that make pontoon landings so hazardous for strangers to this lake. In fact, Canadian Pacific Airways permits none of its pilots to attempt a God's Lake landing until he has made several trips in with pilots who know the lake and its treacheries.

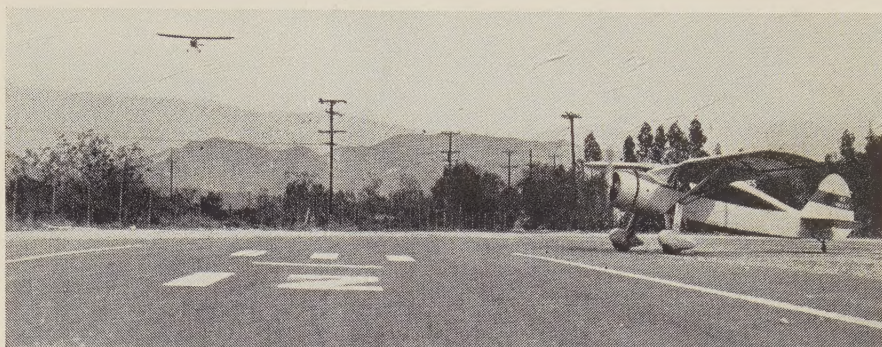
Not wishing to have to go back to civilization we sorrowfully stowed our duffle aboard the plane while Shorty hand-pumped gas from drums into his wing tanks. Twenty minutes later we were aloft. We were homeward bound.

"Say," said Wally, "you don't suppose Ted gave that big fish a shot of adrenalin to revive it so it would flop and look alive? You know, we have a doctor in the crowd."

"Could be," Dr. Moe replied, "only I don't happen to have any adrenalin in my kit. Guess we just have to admit he tops the fishermen in this crowd."



PLANE SERVICE



TIPS FOR THE PLANE OWNER

FACTORY BULLETINS. Among the important aids to accident-free flying are the service bulletins issued from time to time by aircraft manufacturers for individual types of planes. Unfortunately, most pilots, especially those who buy used aircraft, either ignore the bulletins or forget to notify a company or its local dealer so that they may be placed on a mailing list. This sad sort of snafu is due largely to the fact that many pilots have an erroneous conception of the makeup of most service bulletins and the types of information they may include. They do inform owners and operators of mechanical changes and technical alterations in aircraft. They do suggest better methods of maintenance. But most important of all for pilots, the better service-tip sheets include warnings and helps on the direct operation of planes. A catch-as-catch-can sampling of one company's product may drive the point home. Republic Aviation Corporation distributed 49 numbers of the Seabee Service News through distributors between April 20, 1946, and October 13, 1947. Running from one to four pages, aside from diagrams and sketches, the bulletins included about 33 items of maintenance information, 17 announcements of technical changes and new parts issue, and at least 21 descriptions, warnings and tips on the correct ground and air operation of the Seabee. Some of these operation suggestions guard against Dilbert Didoes, and the odds are that some pilots might have avoided making expensive mistakes if they had read every one of their service publications carefully.

AERONCA BRAKE CABLES. While "Check on the Champion" was in the process of being published (SKYWAYS, October, 1947), Aeronca Aircraft Corp. issued directions for a fix of one of the minor troubles mentioned which paralleled the suggestion made in the article. To eliminate whipping of the brake cable against the axle strut on all Aeronca craft, with resulting wear and possible failure of the cable due to its not being kept properly taut, the company suggests the addition of a fairlead on the strut. Materials and a drawing for the change are covered in Aeronca's "Helps and Hints No. 28," issued Sept. 4, 1947, which adds that this change is not necessary if the cables are maintained properly.

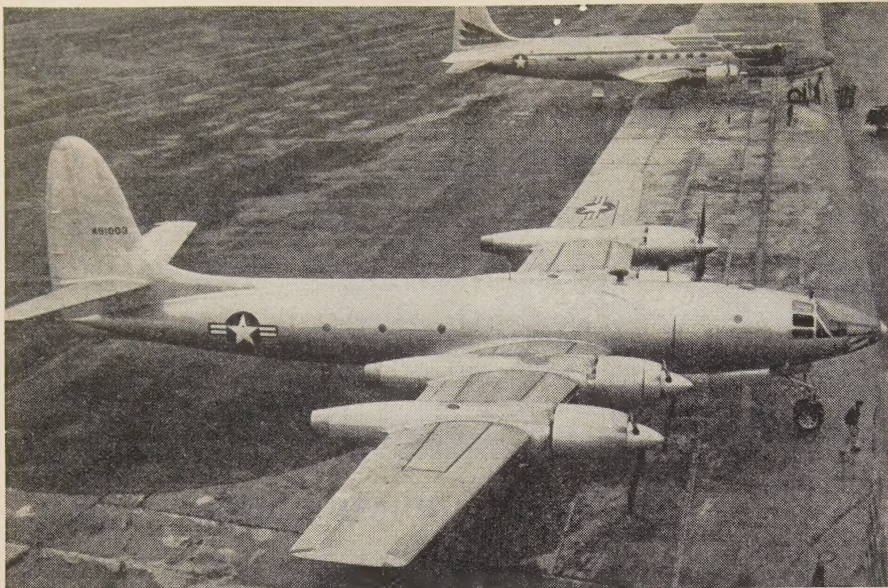
PROPELLER GREASES. Slow operation of controllable propellers after exposure to rain on landplanes and water spray on seaplanes and amphibians has been traced to some types of grease which may become hard and chalky due to water absorption by the grease around the blade retaining assemblies. The Hartzell Propeller Company, after testing various greases for water resistance, tackiness, lubricating properties when mixed with water, and viscosity under various temperatures, recommends the following greases in order of listing, on its propellers: a) Stroma HT-1 (Z-B01 Grease), Union Oil Co. of California; b) Lubriplate 630 AA, Fiske Brothers, Toledo, Ohio; c) Stroma LT-1 (X 815 Grease), Union Oil; d) Lubriplate 707, Fiske Brothers; e) Mobilgrease Aero, Lo-Hi PD-535-K, Socony Vacuum Oil Co. In case of defective operation of any controllable propeller that might be traced to lubrication, it is suggested that the manufacturer of the particular prop be notified to check whether the wrong type of grease is being used.

FUEL STRAINER INSPECTIONS. Many carburetor difficulties can be traced to sloppy inspections. Follow manufacturers' instructions, but generally, fine mesh carburetor screens should be checked and cleaned at least every ten hours, coarser main fuel system strainers every 25 hours. Lean engine operation and some forced landings have been traced to partially blocked fuel strainers.

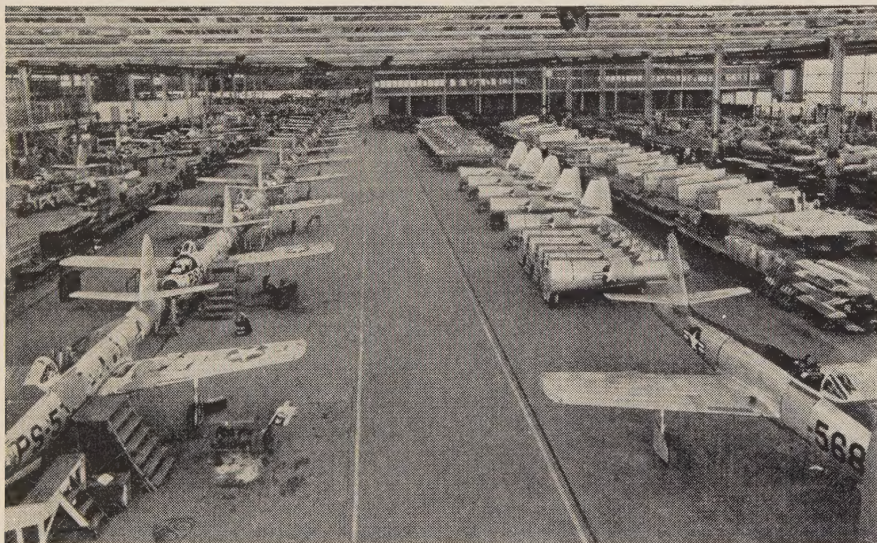
MOVABLE SURFACES. The pilot who doesn't check his controls thoroughly during every pre-flight flirts with the possibility of a minor defect coming to a head *in flight*. Bellcrank bolts have been known to loosen, fairleads may be out of line, pulleys may suddenly bind, or broken cable strands may hook grommets. All these possibilities and others due to general wear may cause only a squeak or a momentary pull on the controls during a check, but it's mandatory that the entire linkage involved be inspected immediately, just to make sure that the "one more flight" is not the dangerous one.

AIR FILTER. Clean the carburetor air filter on your plane frequently, and dip in oil when operating your ship in dusty atmosphere.

Jerry Leichter



REPUBLIC will deliver two XF-12 photo reconnaissance planes to the AF this year. Production possibilities are good. Note the President's plane, "Independence" in rear



PRODUCTION LINE at Republic will be taken up with volume output of the P-84 Thunderjet this year. The total Air Force contract calls for building 550 Thunderjets

PICTURE CREDITS



COVER—Aero-Flight Corporation of Long Beach, California, is introducing what they call "the world's fastest personal plane." According to performance figures, that statement may well be true. Powered by 125-hp Continental, the *Streak* cruises at 192 mph (sea-level), and has 600-mile range at that cruising speed. It has landing speed (with flaps) of 55 mph. The all-metal *Streak* will sell for something under \$4,000.

PAGES 16—ROSE PIX, PAC; 18, 19, 20—MARTIN, UNITED AIRCRAFT, SIKORSKY, NORTH AMERICAN, MAC, BELL, RYAN, TEXAS ENG, LUSCOMBE, OFFICIAL US NAVY, CONSOLIDATED, NORTHROP, FAIRCHILD; 21—BELL; 23—NAT'L PK, BUREAU OF INTERIOR, US FOREST SERVICE; 24, 25, 26—ARENTZ; 28—GROENHOFF; 30, 31, 32—J. M. GRAY; 33—H. E. BRENNERT; 34, 35—ROSS MADDEN; 36, 37—NORTHROP; 38, 39—CANADIAN PACIFIC, JACK CONNOR; 43—MAC, BRITISH COMBINE; 44—NORTH AMERICAN; 50—OFFICIAL US NAVY; 53—BOEING, BRITISH COMBINE, ACME, FLIGHT; 55—ROSS PIX; 57—DE HAVILLAND.

Aviation Forecast

(Continued from page 51)

facturers that the future of the industry is largely dependent upon the President's Air Policy Commission report and what results from that report. The outlook, however, seems good, and trends are in favor of real accomplishment by both the Policy Commission and the Congressional Committee.

Ryan Aeronautical Co. San Diego, Calif.

Military: No military production is anticipated for this year. Ryan, however, will continue its research and development (guided missiles) program for both the Air Force and Navy.

Commercial: None reported.

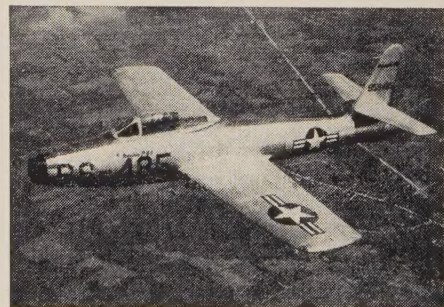
Personal Plane: Ryan's production for this year will be exclusively on the *Navion*. This year's model incorporates seven basic refinements—high-gloss color finish, new interior styling, improved ventilation, sound insulation, new fuel system, refinements in engine and prop as well as plane, and a 20-gallon auxiliary fuel tank. Cost of the airplane for '48 will be \$8,750 f.a.f. No other models are contemplated. Based on utility value of the *Navion* and the utility requirement established by buyers, Ryan looks forward to an expanding market this year.

Sikorsky Aircraft Co. Bridgeport, Conn.

Military: Sikorsky will maintain production of the four-place H03S-1 (Navy) and R-5F (AF) helicopters during the next 12 months. Both of these 'copters are military versions of the four-place S-51. Nothing can be announced at this time regarding possible prototypes to appear this year. It can be assumed, however, that Sikorsky plans to continue its helicopter development for both the Air Force and the Navy.

Commercial: The new helicopter expected to go into production this year is the two-place S 52. The four-place S-51 also will be produced and marketed.

According to B. L. Whelan, General Manager of Sikorsky, his company is looking



CONTRACT for P-84 amounts to \$80,000,-000. Cessna 195 (below) is in production



forward to the continuous growth of the helicopter industry. We can, therefore, expect Sikorsky to maintain a production similar, possibly somewhat better, than that of '47.

Texas Engineering & Manufacturing Dallas, Texas

Military: Company maintains large conversion and overhaul center for military and commercial transport planes, but does no military aircraft development work.

Commercial: See above.

Personal Planes: Texas Engineering will continue production of both the Standard and Deluxe models of the two-place low-wing all-metal GC-1B *Swift*. Price of the Standard is \$3,250; of the Deluxe (equipped with Aeromatic prop, GE two-way radio, oil cooler and metal top hatch, etc.), \$3,750. No real change in production models of either ship is anticipated this year.

Texas Engineering considers the '48 market for personal planes to be better than '47, with greater emphasis on the stability of the whole field.

Chance Vought Aircraft Stratford, Conn.

(Division of United Aircraft)

Military: This year will find Chance Vought completing production for the Navy of the F4U-5 *Corsair*. The Navy contract calls for 328 of these new and improved *Corsairs*. In addition, Chance Vought expects to have the high-speed jet F6U-1 *Pirate* in production. This ship is now finishing up its final tests for the Navy. Research and development work for the military will continue throughout '48. Military security prevents details concerning experimental projects, but we do know that more than one prototype will be announced, with production a possibility in '49. The XF7U-1, Vought's experimental fighter of radical flying wing design and for which a speed range has been predicted of from 40 to 450 mph, will continue to undergo tests. This ship is expected to be flown at Muroc in the near future. Production plans for it will not be certain until it has completed its extensive flight-test program.

Other Companies:

Baumann Aircraft

This company is still at work on the prototype *Brigadier*; is hopeful, however, of being able to get into production before end of '48.

Volmer Aircraft

Slight possibility that this company will put its ship into production late in '48.

Emigh Aircraft

Outlook for this company is considerably brighter than for most others. Plan is to build a plane a day beginning latter part of March. Their ship, the A-2, is to be powered by 85-hp Continental engine, will have 700-mile range, cruising speed of 117 mph. It is expected to sell for \$2,250 and \$2,450, f.a.f. Emigh's dealer organization has been set up in west, southwest.

Thorp Aircraft Co.

This company will be in limited production on the two-place *Sky Skooter* sometime early this year. No design changes or new models are being considered by Thorp in '48. Initial production calls for about 200 planes.

These, then, are the plans of the Aircraft industry for this year. The importance to that industry of the action to be taken as a result of the Congressional Committee's investigation and the President's Air Policy Commission report cannot be over-estimated. In a sense, the survival of the aircraft industry depends upon the action of Congress. The U. S. cannot afford to permit further deterioration of the power that did so much to win the war. A strong and healthy aircraft industry insures our National Security. We believe the nation's desire for that National Security will insure a strong and healthy aircraft industry in 1948. ✈

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CESSNA, UC-78—Licensed until Dec. 31st, 1947. Mohair upholstery; radio equipment in the nose; low time engines. Airplane recovered Nov., 1946. Financing may be arranged. Sacrifice at \$1750. Jack Tompkins, East Los Angeles Airport, 6671 Anaheim-Telegraph Road, Los Angeles, California.

CESSNA T-50, NC69463—Beautiful condition. 700 hrs. total on aircraft and engines; 50 hrs. since engine major. Just re-licensed. Equipped with 2-way radio, 2 generator, auxiliary seat tank, complete blind flying instruments. Exterior finish deep blue with silver trim. Interior mohair with leather seats. Always hangared. Will consider a reasonable offer. Must sell soon. Basney Bros. Motor Sales, 16 S. Pearl St., Knox, Indiana. Phone 3784.

CESSNA, 1946 model 140—Low time, complete equipment, radio, etc., \$1995. Sammie Goldin, Box 229, Marshall, Missouri.

CONTINENTAL C85—Complete, 275 hrs. since new, \$375. Continental C75 with engineering data to install in a J-5 Cruiser, 320 hrs., complete \$375. Sammie Goldin, Box 229, Marshall, Missouri.

HOWARD DGA-11—Recently recovered. Licensed until April 14, 1948. 5-place civilian model with low time engine, constant speed propeller. Very clean. Will go for \$4750. Courtesy to brokers, financing may be arranged. Jack Tompkins, East Los Angeles Airport, 6671 Anaheim-Telegraph Rd., Los Angeles, California.

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STINSON VOYAGER 165—Manufactured June '47. 71 hrs. time, never cracked, always hangared, 2-way radio, heater, full set instruments for instrument flight, landing lights, airplane and engine in perfect condition. Cost \$6149.00. Price, \$4750.00. J. A. Longnecker, Kendallville, Ind.

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TAYLORCRAFT—1946 BC 12D-65 Continental. Same as new, 55 hrs. flying time. Checked every 20 hrs. by licensed mechanic. \$2000.00. A. R. Trehearne, Sedalia, Ohio, P. O. 24.

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AIRCRAFT RADIO—GE Transceiver, AS1B, new, \$165.00. Flying Equipment Co., 1641-5 W. Wolfram St., Dept. S, Chicago 13, Ill.

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